Nuptiality Patterns in Developing Countries: Implications For Fertility

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Summary of Report Findings

This report, based on World Fertility Survey data from 15 selected Asian and Latin American countries, examines patterns in the formation and dissolution of marital unions and the relationship of these patterns to fertility.

In brief, the data indicate that:

a. In Asia age at first marriage varies widely among countries, but nearly every country considered shows evidence of a trend toward later marriage for women.
b. The Latin American countries are generally similar in the average age at which women first marry; no particular trend toward later marriage seems to exist.
c. In Latin America, informal consensual unions are widespread. Two patterns predominate: (1) numerous consensual unions among young women which are gradually outnumbered by formal marriages; and (2) a relatively steady but low level of such unions at all ages.
d. Women with more education or with urban backgrounds tend to marry later.
e. There are major differences from country to country in respect to the extent of divorce and separation.
f. Of all the countries studied, only in the Dominican Republic had the average woman spent more than 10 percent of her time outside of a marital union since her first marriage.
g Both marital fertility rates and the proportions of women married influence a country's birth rate. Linking age at marriage to fertility reveals that in some countries later marriage reduces a woman's fertility largely by limiting her opportunity for childbearing. In other countries, with late marriage patterns, this first effect appears to be reinforced through voluntary limits on fertility.

Changes in marriage patterns are one means of reducing fertility. Increased education and employment opportunities for women may lead to later marriage and increased numbers of women who never marry. Official efforts to manipulate marriage patterns are likely to be limited to prescribing a minimum age for marriage which may or may not be easily enforceable.

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Preface

Nuptiality Patterns in Developing Countries: Implications for Fertility is the first report in a series that will be based on data resulting from the World Fertility Survey (WFS). Begun in 1972 under the auspices of the International Statistical Institute and with major support from the International Union for the Scientific Study of Population, the United Nations and the United States Agency for International Development, the World Fertility Survey is an international research effort to encourage and assist countries in collecting and analyzing basic demographic data and more specific data on national patterns of fertility behavior.

The data are collected by trained interviewers, almost all women, who administer the WFS "core questionnaire" modified and translated for local use. An average survey involves detailed interviews with about 5,000 women. Tabulation of survey results has been standardized, facilitating international comparisons.

The first survey was conducted in Fiji in 1974. Within the next few years over 40 developing countries are expected to complete surveys and publish a First Country Report which provides some analysis of the data and a large number of tabulations. This series is based on the data presented in these First Country Reports.

Acknowledgements

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Introduction

Despite declining fertility, the annual growth rates in most developing countries still remain over two percent—rates that, if maintained, would lead to doubling of a population in no more that 35 years. After World War II mortality rates in many of these countries fell rapidly thanks to imported medical technology and public health improvements. But fertility rates remained basically unchanged. As a result of these high birth rates, developing countries now have especially large numbers of men and women reaching reproductive age. This reservoir of reproductive potential increases the difficulty of reducing population growth rates. Much of the effort to reduce fertility rates has centered on the distribution of modern contraceptives, but there is also considerable interest in finding other ways, "beyond family planning," to alter reproductive behavior.

One area which has attracted attention is the fertility reduction that could result from encouraging changes in marriage patterns. It seems nearly universal that "marriage"* is the socially sanctioned context for most childbearing. In fact, fertility rates in most populations can be seen as the product of two separate factors: marital fertility—the amount and timing of childbearing by married women—and the numbers of women married at different ages. Most fertility reduction is sought through family planning efforts directed at lowering marital fertility. But fertility levels can also be influenced by changes such as a delay in the age at which most women marry or a reduction in the proportion of women married.

Nearly 200 years ago Thomas Malthus recognized that age at marriage affects the fertility rate, and he advocated delayed marriage as a "preventive check" to excessive population growth.[1] Analysis of data for 19th century Western Europe has shown that many people married late in life, and a relatively large proportion of both men and women never married at all. The resulting European crude birth rates (CBR)**, even without modern contraception, were in the 30s, about 10 points lower than those still found in many developing countries where most women marry in their teens and few remain single throughout their lives.

One analysis has illustrated that this difference in birth rates emerges even though 19th century European women tended to have higher marital fertility rates than women in today's developing countries. Using data for India and Sweden, Joginder Kumar has shown that if married women in India in the 1950s had borne children at the same "age-specific" fertility rates as married women in Sweden in the 1870s, India's birth rate would have been around 69 per 1,000 population instead of its actual 42.[2] Alternatively, combining India's marital fertility rates of the 1950s with the Swedish marital patterns of the 1870s—far fewer women married in the most fertile ages of 15 to 30—would have reduced India's crude birth rate to about 18 per 1,000 population, roughly the level of many developed countries today.

These calculations suggest that the adoption of historical European marriage patterns alone could contribute substantially to reducing rapid population growth in many developing countries. A number of studies analyzing fertility declines in Asian countries during the 1960s attribute at least part of the decline to changes in nuptiality patterns.[3] In countries such as Malaysia changes have accompanied economic development, while in China later marriage has been incorporated into official social policy. Sri Lanka, on the other hand, presents an example of an almost European pattern of late marriage evolving without official intervention or even significant economic development. With only moderate levels of contraceptive use, Sri Lanka's relatively low CBR of about 28 per 1,000 is attributed in large measure to its pattern of late marriage.[4]

Are there signs of change in marriage patterns in other developing countries? What changes are likely to have an impact on fertility levels? The published results of national surveys conducted between 1974 and 1978 under the auspices of the World Fertility Survey program provide a large quantity of data which can be used for at least a preliminary investigation of these questions.

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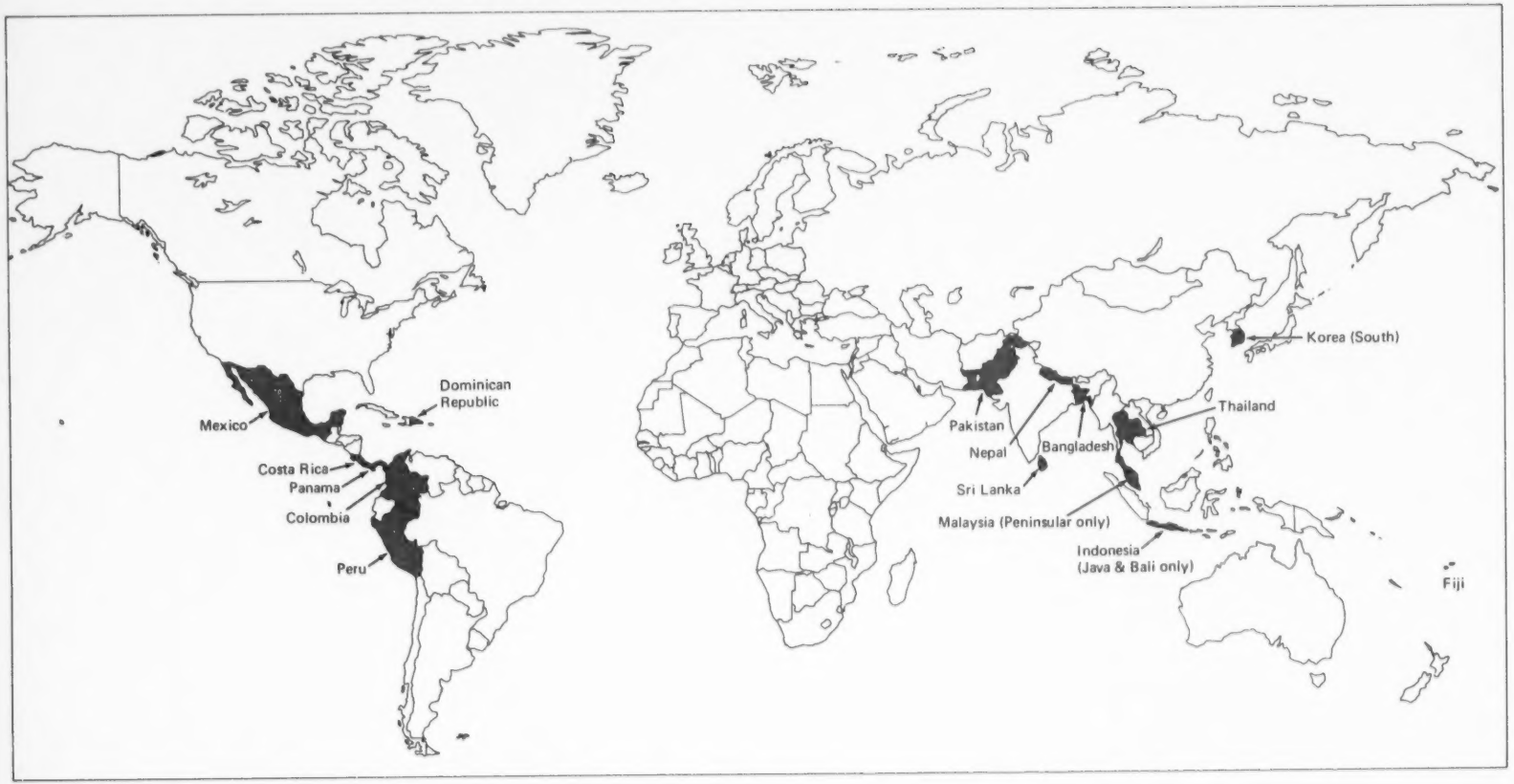
*Marriage ought to be understood to imply most socially recognized and relatively stable sexual unions, not just those unions with formal legal or religious standing. Throughout this report terms such as "marriage", "married", and "marital" are generally intended to reflect this more comprehensive definition.

**The Crude Birth Rate (CBR) is the number of live births per 1,000 population in a specific time period, usually one year.

Figure 1. World Fertility Survey Countries Included in This Report



Background

This report looks at such factors as patterns of age at first marriage, the stability of marriages, and patterns of marital fertility in fifteen developing countries. It includes survey results for nine Asian and six Latin American countries providing the opportunity for both intra- and inter-regional comparisons.* These countries reflect much of the diversity of their regions. The Asian countries included are Bangladesh, Fiji, Indonesia (Java and Bali only), South Korea, Malaysia (West Malaysia only), Nepal, Pakistan, Sri Lanka, and Thailand. The six Latin American countries are Colombia, Costa Rica, the Dominican Republic, Mexico, Panama, and Peru (see Figure 1).†

These countries range in population size from a little more than half a million in Fiji to well over 100 million in Indonesia. Crude birth rates range from the mid-20s in Korea to over 40 per thousand in Bangladesh. A comparison of per capita Gross National Product suggests that countries such as Fiji and Costa Rica are more economically developed than other countries in their respective regions. On the whole, the Latin American countries appear to be more economically advanced and urbanized than most of the Asian countries.

The countries of these two regions also differ in cultural and religious patterns. All six Latin American countries share the imprint of the Spanish colonial experience with Spanish the official language and Roman Catholicism at least nominally the principal religion. African and Amerindian influences, found in varying degrees in parts of these countries, cannot be discounted. By contrast, the nine Asian countries differ widely in language, religion, and ethnicity reflecting centuries of cultural development, competition, and adaptation. Many languages are spoken, and the important religions include Islam, Hinduism, Buddhism, and Christianity. The vastly different cultures of these two regions have produced quite different patterns of marriage.

In Asia marriage is generally an identifiable event with an important place in the social system. Customary practices play the largest part in defining marriage in contrast to the prominent role of civil authority in the West. In much of Asia, traditional culture and religion emphasize the importance of the family and its continuation in succeeding generations, especially through sons. Marriage becomes a means of perpetuating the family. Since unmarried adult daughters have typically had little place in their parents' home and little freedom to assume roles other than wife and mother, marriage has been a near necessity for women. In most of these countries, women generally have been married in their teens to men a few years older than themselves. The largest number of very early marriages seems to occur in Bangladesh and Nepal, while Sri Lanka has been noted for the relatively later ages at which women have married.

But change is occurring. Increased education and employment opportunities for young women are making it possible for daughters to contribute to the financial well-being of their families, reducing pressures to marry them off. And where the Western notion of marriage based on romantic attachment is gaining acceptance, the search for a desirable mate may well be prolonged.

In Latin America marriage is more the affair of individuals than families, and cultural pressures for the early marriage of women are less intense than in Asia. Marriage in Latin American countries is more clearly defined by the state in legal terms. Another important institutional element in marriage is the Catholic Church. But formal marriage is only part of the picture. Informal consensual unions are common. The stability of these unions varies. Some may be relatively brief, but others may continue for many years or even be formalized at some later time. Consensual unions are an important element of Latin American marriage and fertility patterns, but they are also a complicating factor in the analysis of those patterns. Even though recent censuses and surveys have generally attempted to collect information on participation in consensual unions, such unions lack full social acceptability or any formal definition and reporting problems may be quite serious.††

Because of reporting problems, most data on

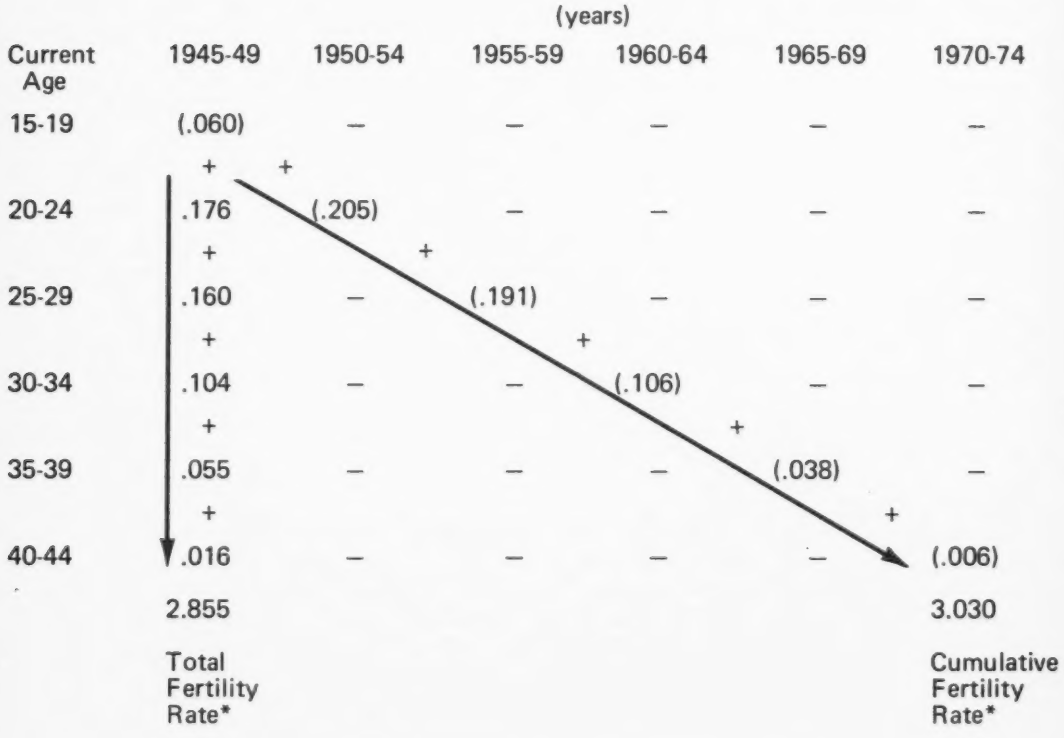
*The average survey has involved detailed interviews with about 5,000 women. The initial presentation of survey results is the First Country Report which provides some analysis of the data and a large number of tabulations.

†Appendix Table A-1 provides a compilation of various demographic and socioeconomic indicators for each country from around the time of the WFS survey.

††The results of the 1970 census in the Dominican Republic illustrate the nature of the reporting problem. About 20,000 more women than men said that they were in consensual unions. A variety of explanations were suggested for this excess

marital status in Latin American countries must be used cautiously. Such caution must extend to the survey results to be presented in this report even though efforts were made to obtain as accurate a picture as possible of each woman's "marital" history.

Figure 2. Illustration of the Relationship Between the Calculation of the Total Fertility Rate and a Cumulative Fertility Rate Using Age-Specific Fertility Rates for White Women 15-44 Years Old in the United States 1945-49 to 1970-74



*The measures are calculated by summing the rates for each age group—multiplying by the size of the age interval, in this case five years.

Source: Weller, R. and L. Bouvier (1980 in press) *Population: Demography & Policy*, New York: St. Martin's Press. (Data from Table "Age-Specific Birth Rates for Women 15 to 44 Years Old, 1920-24 to 1970-74.")

of women: widespread emigration of male participants in these unions, participation by men in more than one union; a greater tendency for men to report their legal rather than *de facto* marital status; and differing perceptions by men and women of the stability of a given union. (Consejo Nacional de Poblacion y Familia, Secretaria de Estado de Salud Publica y Asistencia Social, Republica Dominicana, *Encuesta Nacional de Fecundidad-Informe General*. Santo Domingo, D.N. [*Dominican Republic: World Fertility Survey: First Country Report*] 1976, pp. 13-14.)

Marriage Patterns and Fertility

Marriage, in its various forms, provides the primary social setting in which the biological event of childbearing occurs. But a woman's physiological capacity to have children—her fecundity—is not dependent on the social phenomenon of marriage. Instead, a woman's fecundity varies with her age and health and is typically at its peak when she is in her twenties. Between the onset of puberty and the mid-teens, fecundity appears limited by adolescent subfecundity. As a woman ages, her fecundity declines from its peak, with menopause ending her reproductive life usually by the end of her forties.

While fecundity provides the biological potential for reproduction, marriage patterns and a variety of other factors interact with it to determine a woman's actual reproductive performance. Assuming limited premarital childbearing, marriage signals the beginning of a woman's opportunity to have children. Both the quantity and the quality of time available to her for childbearing are strongly related to her marital experience. A woman who married in her early teens and whose marriage is intact at the end of her reproductive life has had the maximum opportunity for childbearing that marriage can provide. In contrast, a woman who married late in her reproductive life or whose only marriage ends after just a few years clearly has a more limited chance to have children. Even in the United States, where fertility is low and widespread contraceptive use ought to minimize fertility differences among women, those women who marry in their teens or early twenties tend to have more children than women marrying later.[5]

Social norms, demographic patterns, and economic factors all play a part in shaping the character of marriage in a society.[6] The elements involved in this process are wide-ranging and include such factors as preferred age differences between husbands and wives, the relative availability of men and women with desired characteristics, the costs of forming a household, the availability of alternatives to marriage such as education or employment, and the acceptability of divorce or remarriage. It is hard to isolate the influence of any one factor on any one aspect of marriage since change in one area is likely to ripple through a social system producing changes in many other areas as well.

These factors helping determine marriage patterns may also influence fertility. Additional education, for example, is likely to encourage women to postpone marriage, and it can also expose women to ideas and information which lead them to accept contraception or to value smaller families. Thus, women who marry at later ages may have fewer children not only because they have less time available for childbearing but also because their attitudes and expectations are different.

Efforts to identify important influences on marriage and fertility patterns are complicated by the fact that marriage, fertility, and many socioeconomic factors interact in so many ways. There is no set pattern in the way these elements influence each other. Women who seek higher education will probably delay marriage and childbearing, but an early pregnancy is likely to lead to early marriage and may prevent a woman from obtaining further education. Other women might marry in order to leave school. Where large families are valued, childless women may be more likely to be divorced or a young widow with children (having proved her fecundity) more likely to remarry. The material available from the WFS provides the opportunity to identify links between marriage, fertility and socioeconomic factors but not necessarily clear patterns of cause and effect.

The survey results are used to examine the "pattern" of remarriage revealed by the timing and frequency of marital events. The age at which women first marry is of particular interest, but it is also important to consider how many women never marry, and the age at which women are widowed or divorced. Statistical evidence of marriage practices can be provided by counting these various events or classifying members of a population according to their marital status at any given time. The patterns that are found help to summarize the interaction of a variety of less easily quantifiable factors.

Looking at the way various factors influence marriage and fertility over the lifetime of an individual woman or group of women is called longitudinal analysis. Such analysis is valuable, but often of equal or greater interest are cross-sectional measures which summarize marital or fertility behavior for a whole country for a

particular point in time. Cross-sectional measures are influenced by both the number and timing of events for individuals thus linking the two approaches.[7]

One way to illustrate the interrelationship is through age-specific fertility rates. The number of births per 1,000 women of a given age in a given year can be used to calculate either a cross-sectional Total Fertility Rate (TFR) or a longitudinal cumulative fertility rate. In a given year, adding the actual fertility rates for women of each age provides the TFR which can be taken as an estimate of the average number of children a woman would have if current fertility rates were to continue. A cumulative fertility rate, however, measures the average number of children women of a certain age have actually had by adding their fertility rates at each age over successive years. Looking at Figure 2 one can see that what a group of women does in each successive year influences not only their own cumulative fertility but also each year's cross-sectional measurement.

Fertility Outside Marriage

The existence of sexual activity and childbearing outside marriage presents a problem for those investigating the relationship between marriage and fertility. The assumption is usually made that most childbearing occurs to married women. This permits analysts to use marital events to focus attention on the "true" reproductive population. But unmarried women can and do participate in sexual activity and have children. The more widespread such behavior is, the less useful marital events are for analyzing reproductive patterns.

The WFS Reports for some countries provide information on pre-marital conceptions and childbearing which can at least suggest the prevalence of sexual activity outside marriage.* The data in Table 1, especially in the relatively high percentage of Latin American women reporting a pre-marital first birth, reveal a marked difference between the two regions. In Costa Rica and Peru about 13 percent of the women surveyed had a child before their first marital or consensual union. Fiji and Thailand, at about five percent, clearly have the highest levels for Asia. In the other Asian countries less than two percent of the women reported a pre-marital birth. The regional contrast fades somewhat when one considers births occurring within seven months of marriage, most of which were probably conceived before marriage. The figures for Indonesia or Malaysia are about as high as those in the Latin American countries.

The details of these patterns suggest many implications about the social values and practices of each country. For women in countries such as Colombia, Costa Rica, and Peru "marriage" patterns have only a limited relationship to fertility behavior. The Malaysia pattern, however, suggests more limited pre-marital sexual activity combined with strong

Table 1. Percent of Women Married Five or More Years Whose First Birth Interval Was Seven Months or Less: WFS Countries*

	Intervals	
ASIA AND THE PACIFIC	Negative**	0-7 Months
Bangladesh	—	10.4†
Fiji	5.1	7.8†
Indonesia	1.1	7.9
Korea, South	1.3	4.4
Malaysia	0.6	10.4
Nepal††	0.8	2.5†
Sri Lanka	1.8	5.6
Thailand	4.5	7.1
LATIN AMERICA		
Colombia	9.6	10.0
Costa Rica	13.2	13.0
Dominican Republic	2.3	4.0
Mexico	4.8	7.5
Panama	7.5	10.4
Peru	13.1	14.9

Notes:

*Women were asked to provide full pregnancy histories from which the timing of first births was established. Inaccurate dating of first births by the respondents may have led women to be improperly included in or excluded from the data presented.

**First birth occurred before marriage.

†Interval of less than one year.

††Technically refers to births before and in most recent marriage.

Source: Appendix Table A-2.

*The data for Latin America reflect the timing of a first birth in relation to a woman's entry into first union whether formal marriage or consensual union.

Table 2. Singulate Mean Age at Marriage for Men and Women: WFS Countries

ASIA AND THE PACIFIC	Women	Men
Bangladesh	16.3	24.0
Fiji	21.6	25.2
Indonesia	19.4	23.8
Korea, South	23.1	27.0
Malaysia	22.3	27.1
Nepal	17.2	20.8
Pakistan	19.6	25.4
Sri Lanka	25.1	28.7
Thailand	22.5	24.8
LATIN AMERICA		
Colombia	22.1	26.1
Costa Rica	22.5	25.6
Dominican Republic	20.4	25.2
Mexico	21.7	24.4
Panama	21.6	25.7
Peru	23.2	25.7

Sources: Calculated from data in Appendix Tables A-3 and A-4.

social pressures to marry in the event of pregnancy, thus reinforcing the link between marriage and fertility. Where both pre-marital births and pre-marital conceptions are infrequent, one approaches the conditions which are so often assumed to prevail. But such a pattern may result not only from successful prohibitions against pre-marital sex but also from successful contraception and termination of pregnancies by sexually active single women. Alternatively, widespread early marriage, as in Nepal, simply removes much of the opportunity for "pre-marital" sex. While simple assumptions about pre-marital sexual activity cannot be justified, clearly the large majority of women in these countries experienced their first birth after entering into some type of marital union.

Survey Results

*Age at First Marriage**

First marriage, a unique event, signals a significant increase in the probability that a woman will start to have children. For this reason, data concerning age at first marriage have an important role in any analysis of a country's population growth. The later women marry and start having children, the longer it will be before the next generation begins to have children. Thus, even if women have no fewer children, later marriage will slow the addition of these children to the population, helping slow the country's rate of natural increase.

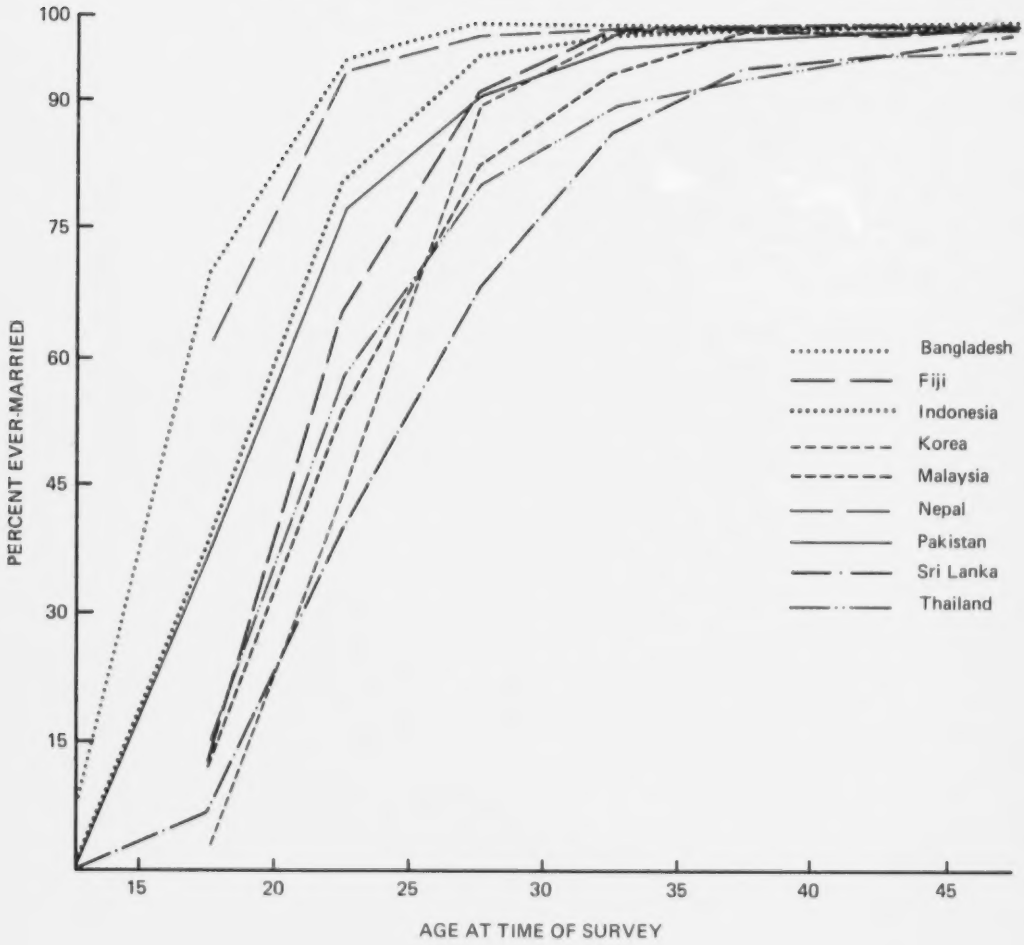
The singulate mean age at marriage (SMAM)† provides a summary figure with which to compare typical ages at marriage in the WFS countries (see Table 2). For women, the SMAM ranges from a little over 16 in Bangladesh to just over 25 in Sri Lanka. This diversity of ages is largely an Asian phenomenon. In the Latin American countries the range is less than three years: 20.4 in the Dominican Republic to 23.2 in Peru. In all of the countries the SMAM for men is at least two years higher than that for women and is generally no more than five years higher.

Plotting by age the proportion of women who have ever been married makes it possible to illustrate not only how early women marry but also how rapidly and how thoroughly marriage spreads through the female population. There are wide differences in Asia (see Figure 3). For example, at the time the survey was conducted about 70 percent of the 15 to 19 year old women in Bangladesh were married, compared to about 3 percent in Korea. Predominantly Moslem Pakistan and Indonesia, showing nearly identical patterns, fall well below Bangladesh and Nepal in the extent of marriage at this age, but they are still distinctly higher than the remaining cluster of countries.

*Most of the data presented in this report are derived from the marriage histories obtained in the WFS surveys. In some countries age at marriage was redefined as the age at which co-habitation began. In Nepal and Bangladesh official marriages may occur well before the couple actually begins living together. The same pattern is found in the Indian community in Fiji, but the native Fijians show some tendency to live together before formal marriage. Nepal is the only country in which women were not asked to provide a detailed marriage history. Since sensitivity to questions on remarriage was considered acute, women were asked only about their most recent marriage. As a result, tabulations which are supposed to refer to a woman's age at her first marriage actually refer to her age at her most recent marriage. In practice, this is likely to have a limited effect on the analysis since 77 percent of the women in the sample reported marrying before the age of 18 (47 percent before the age of 15).

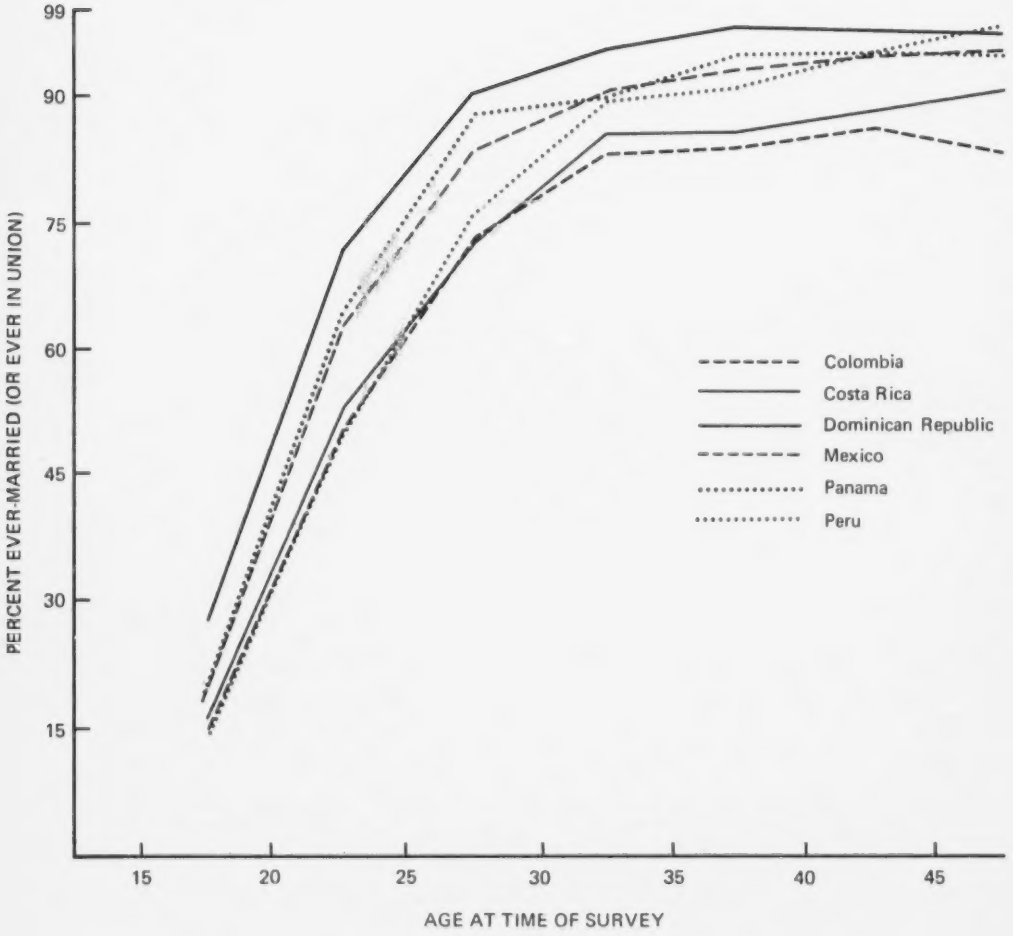
†The SMAM, based on the proportion never married at each age between 15 and 49, can be loosely interpreted as the average age at marriage of those marrying by age 50. For a full explanation of the calculation and limitations of this measure see J. Hajnal, 1953, "Age at Marriage and Proportions Marrying," *Population Studies* 7 (2): 111-136.

Figure 3. Percent of Women Ever-Married by Age: WFS Countries, Asia and the Pacific



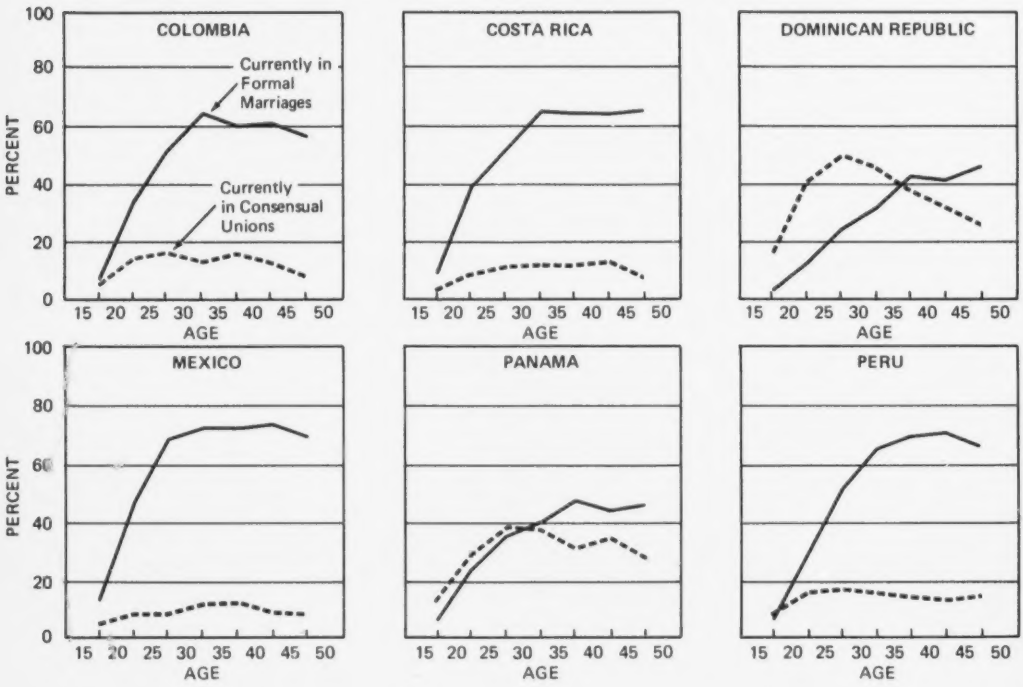
Source: Appendix Table A-3.

Figure 4. Percent of Women Ever-Married by Age: WFS Countries, Latin America



Source: Appendix Table A-3.

Figure 5. Percent of Women Currently in Consensual Unions and Percent Currently in Formal Marriages by Age: WFS Countries, Latin America



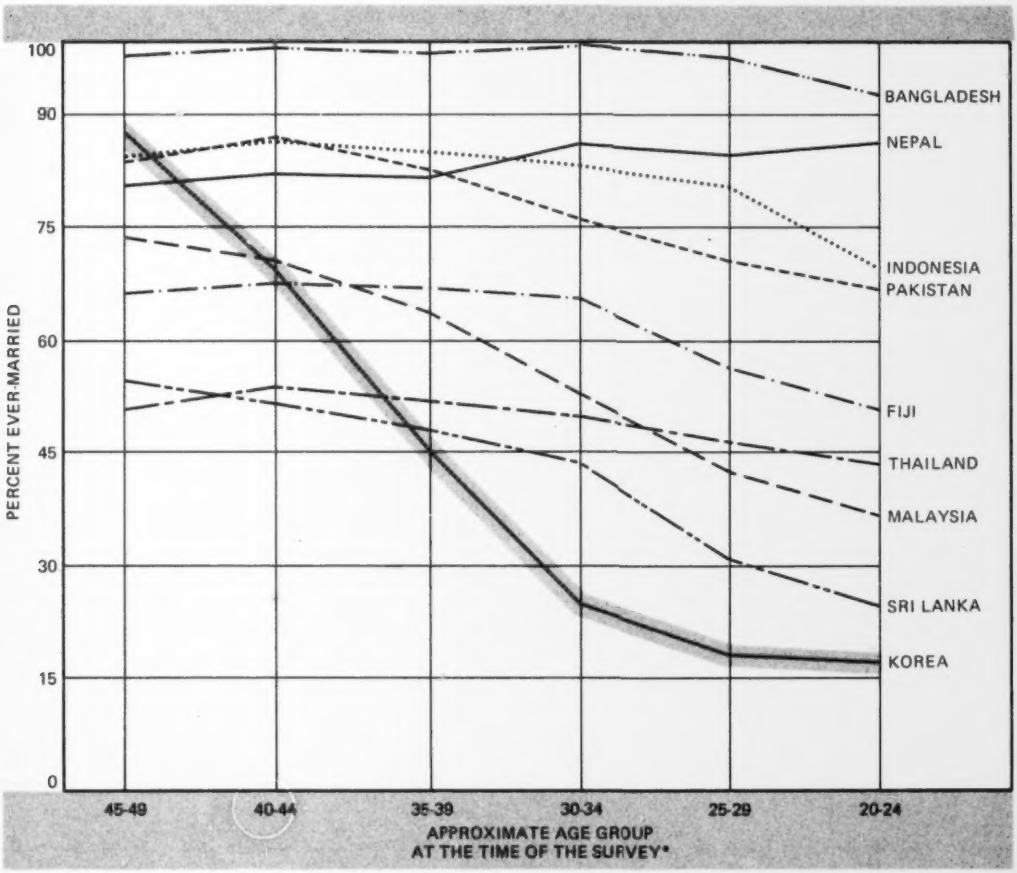
Source: Appendix Table A-3.

The proportion of women married rises with age in every country. But Sri Lanka and Korea illustrate two different patterns. Sri Lanka's pattern of late marriage appears to involve a continuing and relatively high level of non-marriage among women into their late 20's and early 30's. In Korea, though, the very low levels of marriage among the youngest women give way to a very rapid spread of marriage. Thus, 90 percent of the 25 to 29 year olds have married (compared to less than 70 percent in Sri Lanka). Clearly the presumed value of delayed marriage in reducing fertility may be limited if such delay merely results in compressing the time it takes for most women to marry.

The Latin American countries are less diverse than the Asian in both the levels and patterns of proportions of women ever-married (see Figure 4). The patterns for Costa Rica and Colombia are very similar as are those for Mexico and Panama where somewhat greater proportions are married (or in a union) at all ages. Peru gradually shifts from the Colombia/Costa Rica pattern to that for Panama and Mexico. Among the oldest women in all of the Asian countries, the proportion who have ever been married approaches 100 percent. In Latin America, however, a substantial proportion report they have never married. This proportion at older ages may be artifically high if some women failed to report earlier participation in some form of union.*

*In every country except Colombia the surveys found that a smaller proportion of the older women were reported as never married than in the previous census. The more careful questioning in the surveys leading to more accurate responses than in a census probably accounts for much of the difference. But the discrepancies between the surveys and censuses do suggest that reporting problems may exist in the WFS data as well.

Figure 6. Estimated Percent of Women Ever-Married Before Age 20 by Age at the Time of the WFS Survey: WFS Countries, Asia and the Pacific



Notes: *This scale has been used as a substitute for the calendar years in which birth cohorts reached age 20. Since the surveys were taken in different years, no single calendar year scale can be assigned. But the graphs are intended to illustrate changes over time. Thus the data for women 45 to 49 at the time of a survey taken in 1975, for example, reflect the period 1946 to 1950 whereas women 20 to 24 at the survey reached the age of 20 between 1971 and 1975.
Source: Appendix Table A-5.

The widespread existence of consensual unions complicates the analysis of Latin American marriage patterns. For these countries it is important to consider the contribution of consensual unions to the proportion "married" at each age. Two patterns emerge from Figure 5: in the Dominican Republic and Panama, consensual unions are widespread and, among younger women, outnumber formal marriages; in Costa Rica, Colombia, Mexico and Peru, consensual unions are a small but persistent factor throughout the age groups.

Another important dimension of marriage patterns is their change over time. Increasing age at first marriage has been cited as an important factor in the fertility decline in Korea, Malaysia, and Sri Lanka.[8] Evidence that such a change has been occurring in many Asian countries emerges from Figure 6. The data for Latin America (Figure 7), however, suggest much less change. These two figures show estimates of the proportion of women of various ages who married before the age of 20.* Since women aged 45 to 49 at the time of the survey reached the age of 20 about 25 to 29 years ago and women who were only 20 to 24 at the time of the survey reached age 20 less than five years earlier, evidence for a period of roughly 25 years can be examined.

Among the Asian countries, all but Nepal† show some evidence, among at least the youngest women, of increasingly smaller proportions married by age 20. The most striking change has occurred in Korea where nearly 90 percent of the oldest women had married in their teens but less than 20 percent of the youngest women had done so. The recent and relatively small change seen in Bangladesh should not be overlooked. Since women there have traditionally married in their very early teens, quite substantial changes in marriage patterns would have to occur to be reflected in the proportions married by age 20.

For Latin America, there is only a modest trend toward later marriage. Mexico and Panama show the most persistent decline in the proportion married by age 20, but, in general, little difference exists between the experience of the oldest and youngest women. The convergence of the lines in Latin America, reflecting increased similarity of recent marriage patterns, is an interesting contrast with Asia where marriage patterns have greatly increased in diversity over time.

In all countries, marriage patterns are related to various socioeconomic factors such as education and residence. Within each country, particular factors are of special importance (e.g. ethnic groups in Malaysia) in understanding marriage patterns. But a widespread similarity of patterns in age at first marriage in terms of a woman's education and her residence is found (see Figures 8 and 9). In every country, women with more education or who were raised in urban areas have a later mean age at first marriage.†† In some cases the differences are small, but the consistency of these relationships is striking.

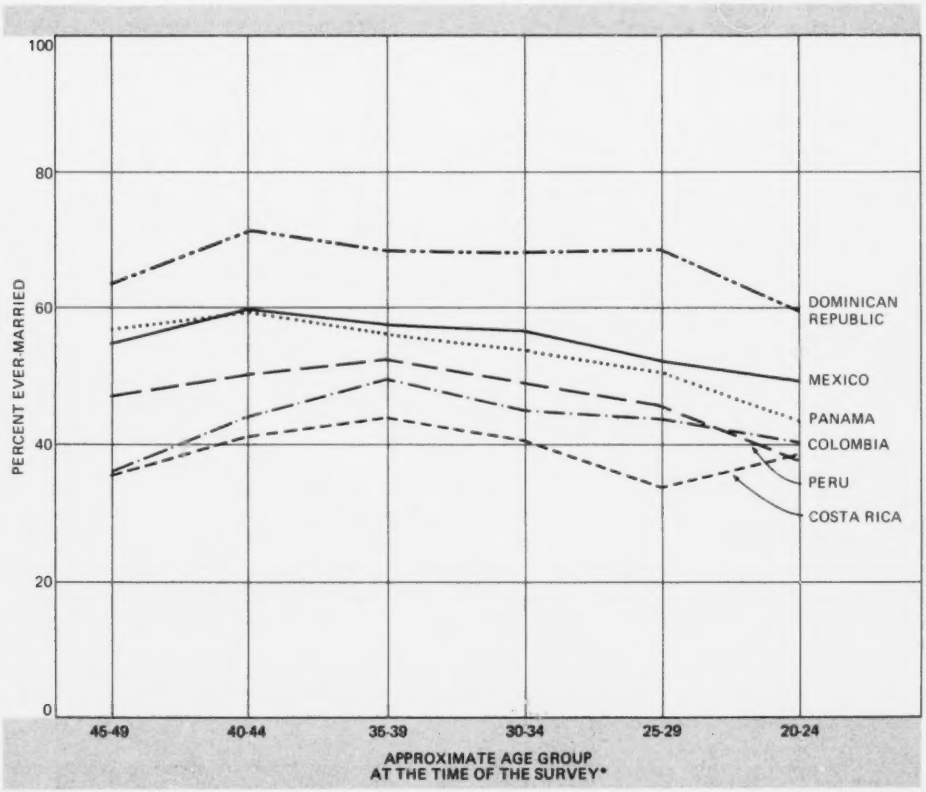
Because of these patterns, countries with more women brought up in urban areas or with more educational opportunities for women tend to show later ages at marriage. In Sri Lanka, for example, 35 percent of the ever married women have at least some secondary education while in Bangladesh less than 5 percent have had this much schooling. But, it is also possible to see that the differences between countries cannot be fully explained in this way since differences in the mean age at marriage can still be found when comparing

*These estimates are based on the respondents' reports of age at first marriage and the estimated proportions of each age group never married at the time of the survey. An implicit assumption is made that migration and mortality have not been selective with respect to marital status.

†The apparent evidence of earlier marriage among younger women in Nepal is probably due to the fact that the "age at marriage" question referred to a woman's most recent marriage. Thus, some women may have been reporting on their age at a second marriage. These reports would shift the average age of marriage up and such "bias" would tend to be greater among older women who would have had more opportunity to marry more than once.

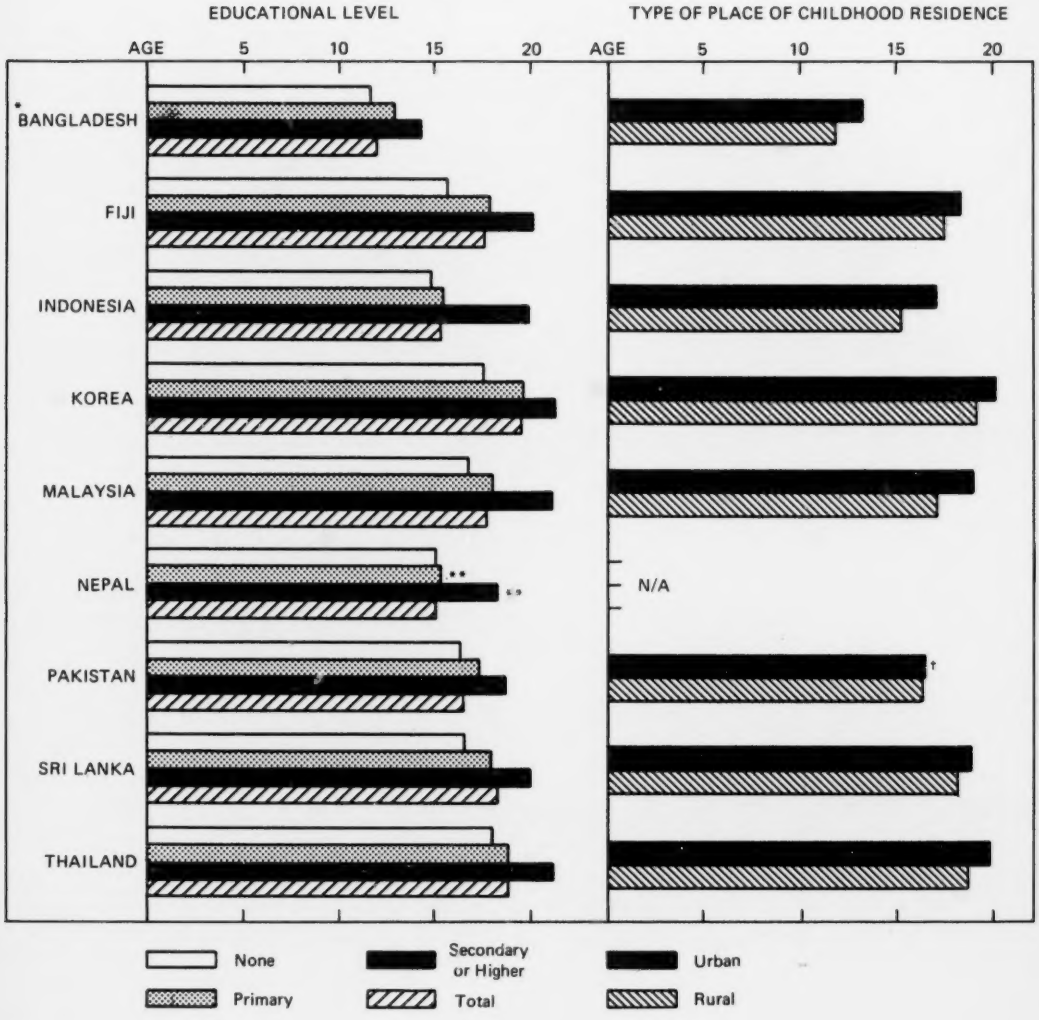
††These means are for ever-married women age 25 to 49 who married before the age of 25. (In Bangladesh where most women have married before the age of 20, the means are for ever married women 20 to 49 who married before the age of 20.) This limitation ensures that all of these women will have had an equal opportunity to marry in a specific range of ages. This prevents the mean from being biased downwards by the inclusion of younger women who are present in the sample specifically because they married at early ages. Offsetting this advantage of the constraint is the fact that the means calculated in this way cannot reflect changes in the proportions never marrying. Changes in the behavior of the younger women, those most likely to reflect new attitudes, are also missed. And for a country such as Sri Lanka where many women marry after the age of 25, a mean age at marriage for women marrying before age 25 may appear misleadingly low.

Figure 7. Estimated Percent of Women Ever-Married Before Age 20 by Age at the Time of the Survey: WFS Countries, Latin America



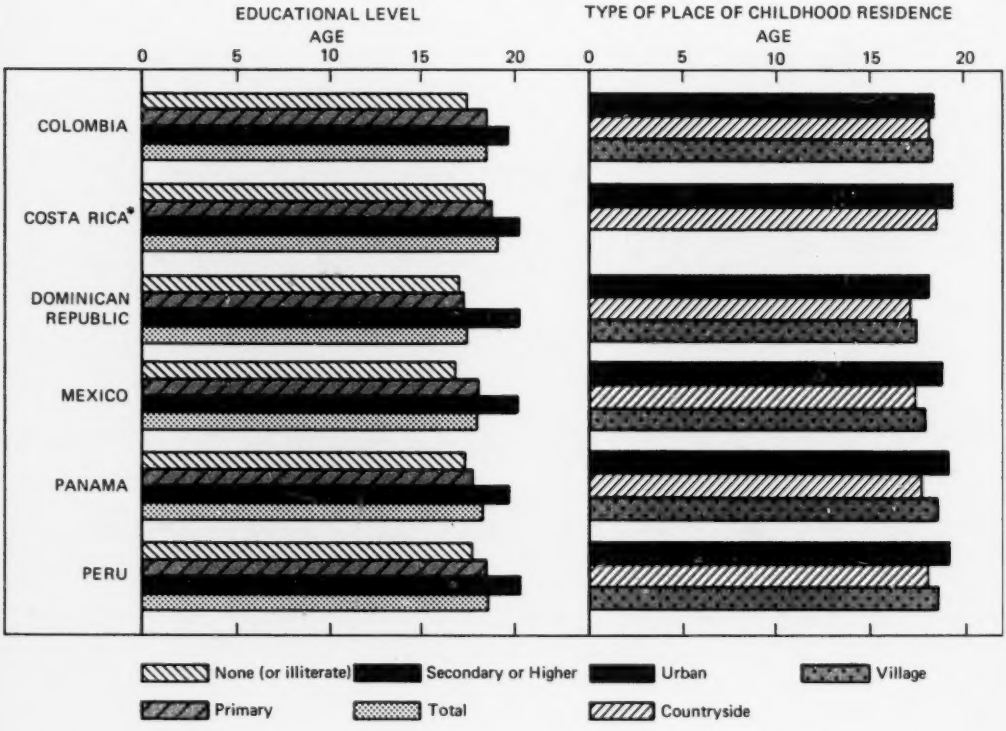
Notes: *This scale has been used as a substitute for the calendar years in which birth cohorts reached age 20. Since the surveys were taken in different years, no single calendar year scale can be assigned. But the graphs are intended to illustrate changes over time. Thus the data for women 45 to 49 at the time of a survey taken in 1975, for example, reflect the period 1946 to 1950 whereas women 20 to 24 at the survey reached the age of 20 between 1971 and 1975.
Source: Appendix Table A-5.

Figure 8. Mean Age at First Marriage for Ever-Married Women Age 25 to 49 Who Married Before Age 25 by Educational Level and Type of Place of Childhood Residence: WFS Countries, Asia and the Pacific



Notes: *Refers to woman 20 to 49 years at time of survey who married before age 20.
**Fewer than 100 cases.
†Type of place of current residence.
Source: Appendix Table A-6.

Figure 9. Mean Age at First Marriage for Ever-Married Women Age 25 to 49 Who Married (or Entered A Union) Before Age 25 by Educational Level and Type of Place of Childhood Residence: WFS Countries, Latin America



Notes: *Type of place of current residence. Rural not broken down into the separate categories "Countryside" and "Village".

Source: Appendix Table A-6.

Table 3. Average Percent of Time Since First Marriage Spent in a Marital Union by Ever-Married Women: WFS Countries

	Average Percent of Time Since First Marriage Spent in a Marital Union
ASIA AND THE PACIFIC	
Bangladesh	93.0
Fiji	96.0
Indonesia	90.7
Korea, South	NA
Malaysia	91.2
Nepal*	96.1
Pakistan	98.0
Sri Lanka	95.0
Thailand	NA
LATIN AMERICA	
Colombia	91.0
Costa Rica	93.2
Dominican Republic	83.6
Mexico	93.4
Panama	89.0
Peru	93.0

NA = not available
* = Measure is percent of time in marriage since most recent marriage.
Sources: WFS First Country Reports, Table 1.4.1; except for Fiji (Table D8) and Indonesia (Table 1.2.5).

only women with primary education or those raised in urban areas. It is difficult to make cross-country comparisons for the broad classifications used here, but even among women with no education the mean age at marriage ranges from less than 12 in Bangladesh to almost 15 in Indonesia to over 18 in Costa Rica. Differences such as these reveal the complexity of marriage patterns and show that national differences are not simply due to variations in the proportions of educated or urbanized women.

Marital Dissolution and Remarriage

Just as formation of a marital union increases the likelihood of childbearing, marital dissolution decreases it—unless an individual remarries. The combination of these three factors influences fertility in complex ways. For example, divorce at an early age, followed almost immediately by remarriage, has a different effect on fertility than widowhood at a later age with no remarriage.

Strong regional and national differences in demographic, cultural and socioeconomic patterns are associated with marital dissolution and remarriage. Widowhood is strongly associated with age, but proportions of women divorced and separated may differ little among younger and older women. In countries where the Catholic Church is influential, divorce may be less likely to occur. Remarriage may depend on factors such as a woman's age, the number of children she has already had or the reason her first marriage ended. In Hindu communities, for example, widows have traditionally been prohibited from remarrying.

A comparison of the percentages of ever-married women whose first marriage ended in divorce, separation or widowhood, reveals various contrasts among the countries (see Figure 10). For example, both Indonesia and the Dominican Republic have a particularly high level of marital dissolution. In Indonesia divorce is the major reason for dissolution while in the Dominican Republic it is separation. Separation is a prominent cause of dissolution in other Latin American countries as well,* probably reflecting the fact that no divorce is required to end a consensual union and the influence of the Catholic Church. To some extent, widespread separation, or divorce, preempt widowhood as a source of marital dissolution.

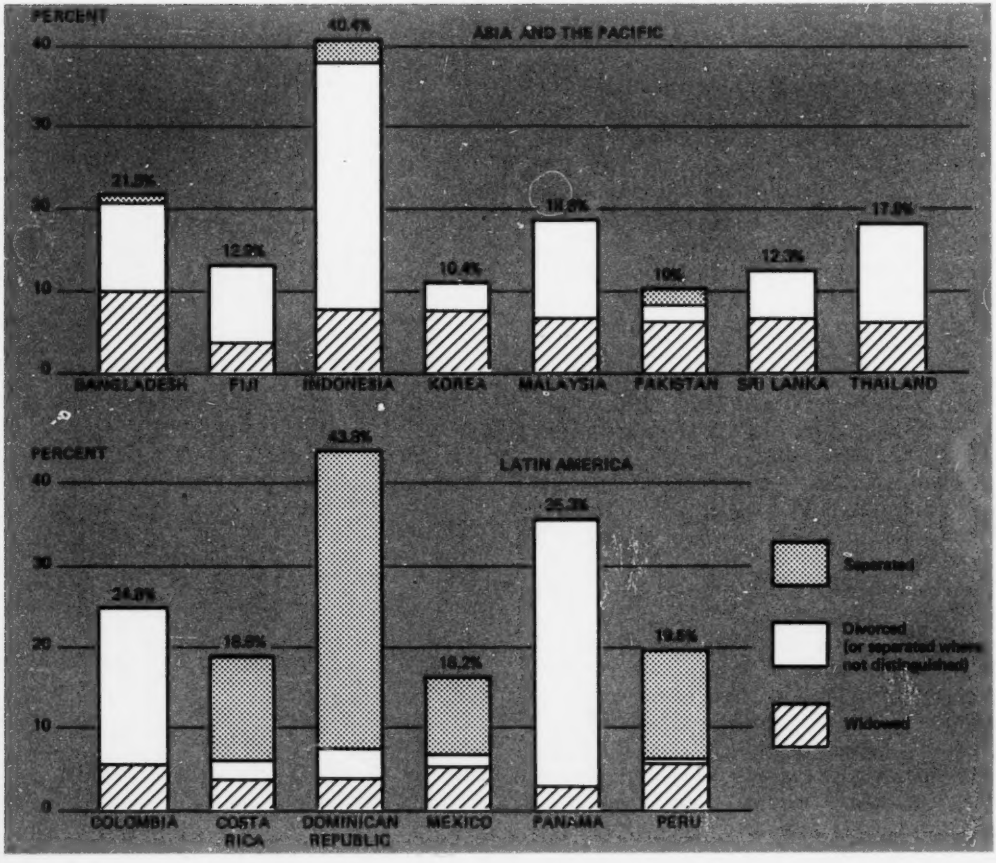
In Asia, levels of divorce are not readily linked with religion. The country with the highest level of divorce, Indonesia, and the country with the lowest, Pakistan, are both predominantly Moslem.

The levels of widowhood are very similar in six of the eight Asian countries. Fiji, which has the lowest level of widowhood, also has very low mortality rates. But in Bangladesh, the higher level of widowhood reflects both the effects of higher mortality rates and the unusually large difference in age (about eight years) between husbands and wives (see Table 2).†

*In Colombia and Panama, divorce and separation were treated as a single category, but it is likely that separation is the major reason for marital dissolution in those countries.

†It is possible that improvements in mortality or reduced age differences between husbands and wives in Bangladesh which reduce widowhood and extend a woman's married life could well tend to raise fertility levels.

*Figure 10. Percent of Ever-Married Women Whose First Marriage Has Ended by Reason for Dissolution: WFS Countries**



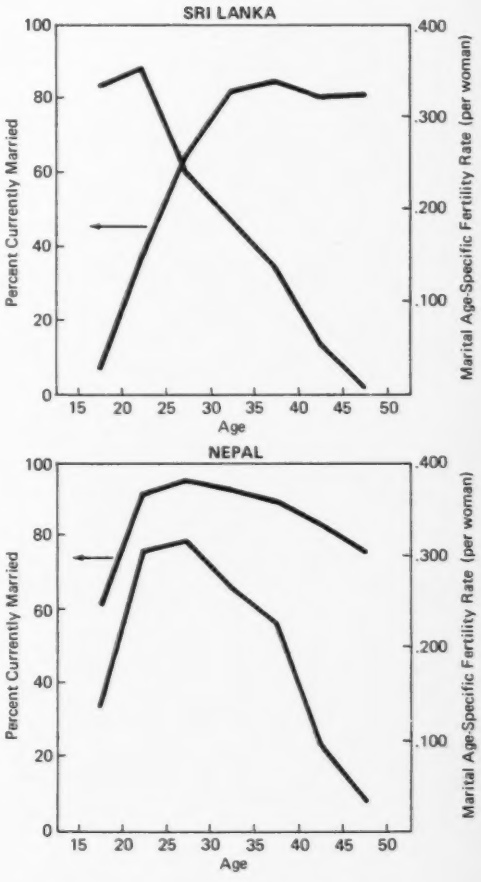
*Figures not available for Nepal.
Source: Appendix Table A-7.

While offering useful insight into the sources of marital dissolution, the data on the status of first marriage touches on only one facet of the relationship between marital dissolution and the opportunity for childbearing. The age at which a woman's marriage ends as well as when and if she remarries determine the amount of reproductive time lost and the woman's potential fecundity during that lost time. One way to summarize the quantity of time lost is by calculating the percentage of the time since a woman's first marriage which she spent in a marital union (see Table 3).

In both Asia and Latin America an average woman of reproductive age, once married, has spent a very large proportion of her time in a marital union. The greatest loss of reproductive time is in the Dominican Republic, particularly among young women. Considering the country's high frequency with which first unions end, this finding is not surprising. Apparently the early unions there are unstable. In Pakistan and Sri Lanka, however, the percentage of time in a marital union declines among older women. This pattern probably reflects the traditional limitations on the remarriage of widows. The other Asian countries show a pattern more similar to that of the Dominican Republic suggesting that there is some marital instability among young women in these countries as well.

Another measure of the impact of marital dissolution on the opportunity for childbearing can be found in the percentage of women in a population who are widowed, divorced and separated. Available by age (see Appendix Table A-3), these percentages show that marital dissolution is most common among older women whose fecundity is lowest. About 15 to 20 percent of women 45 to 49 are widowed, divorced or separated. The percentage for women in their 20s, their most fecund years, exceeds 5 percent only in the Dominican Republic, Panama, and Indonesia.

Figure 11. Percent of Women Currently Married by Age and Marital Age-Specific Fertility Rates at the Time of the WFS Survey: Nepal and Sri Lanka



Source: Appendix Table A-8.

Interaction of Marriage and Fertility Patterns

Thus far various aspects of marriage patterns and their likely impact on the reproductive potential of both individual women and populations as a whole have been examined. But there is a gap between potential and actual

reproductive performance in which other factors, such as contraceptive use and breastfeeding practices, play important roles. Since it is the actual level of fertility which is of greatest significance ultimately, it is important to examine its relationship to marital patterns. This can be done with the WFS results using both cross-sectional data for the time of the survey and cumulative data covering the lifetime fertility experience of women.

At any given point in time, the proportion of women of various ages in marital unions is a product of the factors determining both the formation and dissolution of such unions. (Appendix Table A-3 shows the percent of women currently married in the various WFS countries.) Among these currently married women there are also age-related patterns of childbearing. Where fertility outside marriage is limited, a country's birth rate can be directly related to the number of married women available to contribute births at each age-specific rate.* These two components are illustrated in Figure 11 using Sri Lanka and Nepal which provide strongly contrasting examples.

At the time of the survey, Sri Lanka had a crude birth rate of about 28 while the rate in Nepal was over 40. However, the age-specific fertility rates of married women reach a higher peak in Sri Lanka (at ages 20-24) than in Nepal (at ages 25-29). But in Nepal the highest fertility rates occur at the same ages at which the highest proportions are currently married. In Nepal over 90 percent of the surveyed women of 25-29 were currently married, but less than 40 percent of the Sri Lankan women at the ages of peak fertility were married. The high early fertility rates in Sri Lanka fall off quickly so that among women in their late 30s, where over 80 percent are currently married, the fertility rates are less than half the peak value and also lower than the rate in Nepal for women of the same age.

The interaction of the level of marital fertility and the proportions married in Nepal and Sri Lanka can be illustrated by considering the childbearing experience they imply for a hypothetical group of women.† The marital fertility rates alone suggest little difference. The average woman would have about 6.9 children with Nepal's rates and about 6.6 with those of Sri Lanka. But when the women are also subject to each country's proportion currently married, the number of children implied is quite different: 6.1 in Nepal and 3.2 in Sri Lanka. If the Nepalese fertility rates were to be combined with the proportion married in Sri Lanka, the average woman would have about 4.0 children, almost a full child more than the Sri Lankan fertility rates imply. In order to bring Nepal's birth rate closer to that of Sri Lanka's, reductions in both marital fertility rates and the proportions married appear to be necessary. Changes such as increased use of contraception can lower the fertility rate curve and produce an earlier, steeper decline while later first marriage can slow the rise to maximum proportions married.

Because informal unions are frequent, the picture in Latin America is much more ambiguous. Not only is it more difficult to establish the true proportion of women at greater risk of childbearing, but it is nearly impossible to construct fertility rates which meaningfully reflect their reproductive behavior.

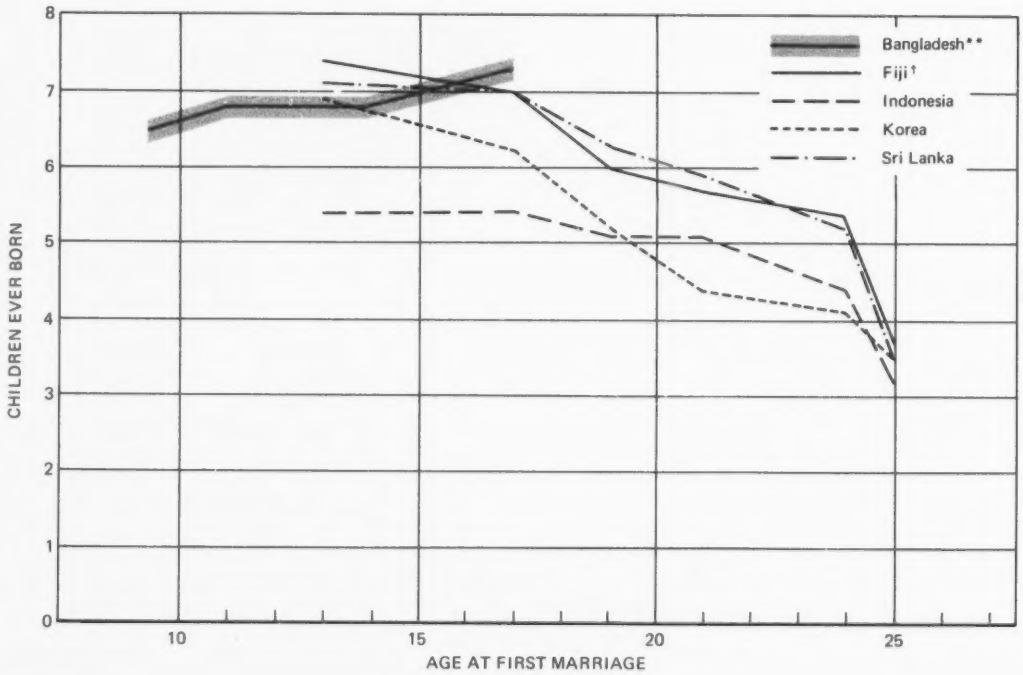
Another way to look at the relationship between marriage patterns and actual fertility behavior is through differences over time in the number of children born to women with differing marital experiences. Usually women who marry later have fewer children than those who marry at a younger age. This relationship is clearly illustrated in Figure 12 with a comparison of the average number of children ever born to women 45-49 who married at different ages. One notable exception is Bangladesh.

In Bangladesh, where almost all women marry in their teens, those who married at the very earliest ages have had fewer children than those who married at 15 or older. This pattern may arise from health impairments from early childbearing or perhaps from earlier marital dissolution among those who married at the earliest ages. It is clear, however, that delaying marriage, even for several years, is

*The age distribution of the full population must also be taken into account in birth rate calculations.

†The calculations were made assuming an equal number of women experienced the fertility and nuptiality schedules at each age in a procedure analagous to the calculation of the Total Fertility Rate (TFR). For an expalantion of the TFR and its derivation see p. 8.

Figure 12. Mean Number of Children Ever Born to Ever-Married Women, 45 to 49, by Age at First Marriage: WFS Countries, Asia and the Pacific*



Notes: *Where N is less than 20, the mean is not shown.
**Intervals for Bangladesh differ from those for the other countries.
†Women 40 to 49 years.
Source: Appendix Table A-9.

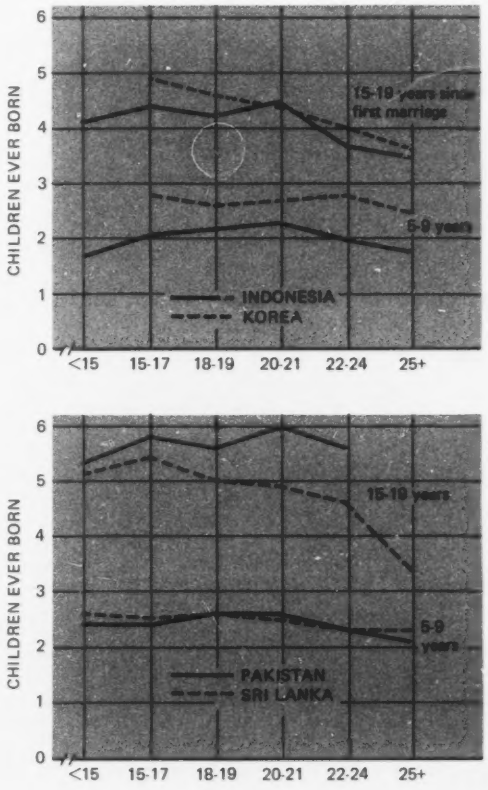
not in itself likely to be an immediately useful means of reducing fertility.

A thought-provoking question arises about the women who live in countries where later marriage is associated with having fewer children: are these women having fewer children simply because they have less opportunity to have them? In some countries, the answer is "yes," but in others, women seem to be having fewer children than "opportunity" alone would suggest. This conclusion arises from a comparison of the childbearing experience of women who have married at different ages but who were married for the first time about the same number of years before (see Figures 13 and 14 with illustrations for selected Asian and Latin American countries).

Among women who married between five to nine years before the survey, there is no clear-cut inverse relationship between their age at first marriage and the number of children they have had. In some countries such as Indonesia and the Dominican Republic, women who married at the earliest ages appear to have had slightly fewer children than women who married later. Various factors may account for this pattern. Women who married very young are likely to have experienced the fertility suppressing effects of adolescent subfecundity in the earliest years of their marriage. Alternatively, one may consider whether women who marry later in countries such as these where early marriage is the norm fail to follow other traditional practices which tend to limit fertility. Not returning to the parents' home for the birth of a first child or limited breast-feeding are both factors which might lead to shortened intervals between pregnancies.

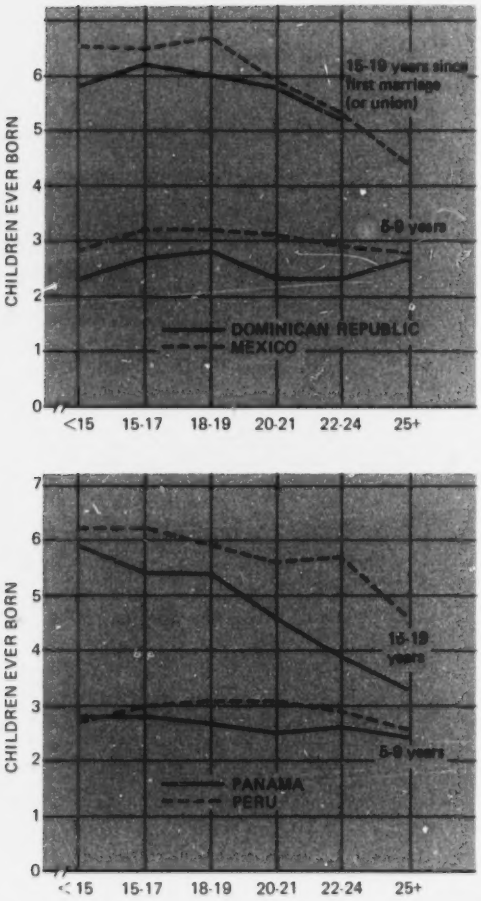
Among women who married 15 to 19 years earlier, however, different patterns are noted. In several countries—Sri Lanka, Korea, Mexico, and Panama—there is an inverse relationship between age at marriage and children ever born. In other countries, such as Pakistan, Indonesia, and Peru, however, only the women who married at the oldest ages have clearly had fewer children. These women, in their 40s after 15 to 19 years of marriage, are the group most likely to have been affected by fecundity impairments. But, fecundity impairments cannot explain why younger women in some of the countries have begun to have fewer children while in other countries they have not.

Figure 13. Mean Number of Children Ever Born to Ever-Married Women at Selected Intervals Since First Marriage by Age at First Marriage: WFS Countries, Asia and the Pacific*



*Where N is less than 20, mean is not shown.
Source: Appendix Table A-10.

Figure 14. Mean Number of Children Ever Born to Ever-Married Women at Selected Intervals Since First Marriage by Age at First Marriage: WFS Countries, Latin America*



*Where N is less than 20, the mean is not shown.
Source: Appendix Table A-10.

Interestingly, those countries which show a marked negative relationship between fertility and age at marriage after 15 to 19 years of marriage are also the countries for which high mean ages at marriage (SMAM, see Table 2, p. 11) or evidence of a persistent rise in age at marriage were found (see Figures 6 and 7, pp. 15 and 17). On the other hand, in countries of early marriage (especially Asia) or where there has been little change over time in age at marriage (especially Latin America) there is a pattern of relatively level fertility later in marriage. These associations seem to support the speculation that values encouraging later marriage are also likely to encourage smaller family size.

Women who marry at the earliest ages are less likely to have been influenced by values and circumstances encouraging smaller families. This seems true even in countries such as Korea and Sri Lanka, where early marriage is not especially common and values associated with delayed marriage are likely to be widespread. But later marriage itself does not seem to reflect any particular influence on fertility behavior in countries such as Pakistan where most women marry early. There the principal effect of later marriage seems to be to limit the opportunity for childbearing. Where later marriage is the norm, though, there also seems to be greater evidence of voluntary control of fertility among those who married later.

Conclusions

Marital unions, whether formal or informal, and the values surrounding their formation and dissolution are important elements of nearly every social system. Marriage patterns influence and are influenced by a wide range of factors—one of the most important of which is fertility behavior. Because of this link, people interested in achieving lower fertility levels in developing countries may see manipulation of marriage patterns as a potentially useful means of reaching that end. But the relationship between marriage and fertility is a complicated one.

In this report the results of the World Fertility Survey in a number of Asian and Latin American countries allow a limited exploration of marriage patterns and their link to fertility behavior. There is evidence in most of the Asian countries of some trend toward later

marriage. The Latin American countries, however, show much less evidence of any such trend and differ relatively little among themselves compared to the diversity found in the Asian countries. But in Latin America, informal consensual unions are widespread and exhibit two basic patterns: numerous consensual unions among younger women gradually outnumbered by formal marriage among older women versus a relatively steady but fairly low proportion of consensual unions at all ages. The survey results support the notion that women with more education or with urban backgrounds tend to marry later. Major differences exist in the extent of divorce and separation, but only in the Dominican Republic had the average woman spent much more than 10 percent of the time since her first marriage outside of a marital union. Linking marriage patterns to fertility reveals that in some countries later marriage reduces a woman's fertility largely by limiting her opportunity for childbearing. In other countries, which show particularly late marriage patterns this effect appears to be reinforced through voluntary limits on fertility within marriage.

The comparison of marital fertility rates and the proportions married in Sri Lanka and Nepal illustrates that a country's birth rate may be reduced by lowering the level of either of those two variables. Family planning programs are clearly aimed at the fertility rates, but changing the proportion of women married cannot be ignored. In most countries this is likely to rest on efforts to encourage later ages at first marriage. Efforts to increase marital dissolution or to discourage remarriage are not likely to be acceptable or to have as much impact in reducing fertility.

Increasing the age at which women marry is no easy task. Simple legislation of a minimum age will do little to change the cultural and social structure in which traditional marriage age patterns are embedded. The widespread prevalence of consensual unions in Latin America is one illustration of the limitations of official control. For the women, themselves, later marriage means a need to have a role in their family and in society which does not depend on early marriage. Thus, educational and employment opportunities for women may be a necessary adjunct of official efforts to delay marriage.[9] But where women are able to participate in a developing economy or are given the opportunity for additional education, later marriage may come without official intervention.

Social change is always difficult and often painful. Certainly efforts to change marriage patterns will be no different. □

Appendix Table A-1: Selected Demographic, Social, and Economic Characteristics for Countries in the WFS: 1974-78

	Year of WFS Survey	Population Estimate[A.AA] Mid-1976 (Millions)	Surface Area (1000 km²)[BB]	Birth Rate[B.AA]	Death Rate[B.AA]	Rate of Population Growth[C.AA] (Annual, Percent)	Infant Mortality Rate[D.AA]	Population Under 15 Years[AA] (Percent)	Life Expectancy at Birth[AA] (Years)	Percent Women in Union,[GG] Age 15-19	Urban Population (Percent)[F.AA]	Labor Force in Agriculture[P.CC] (Percent)	Per Capita Gross National[G.AA] Product (U.S. $)	Physical Quality of Life[G,H,DD] Index	Adult Literacy Rate[I,88,CC] (Total)	(Female)	(Male)	Population per Physician[P.CC]	Population Having Access[P.CC] to Safe Water (Percent)	Government Position on[J,FF] Family Planning	Percent Married Women[GG] Using Contraception, Age 15-49
ASIA AND PACIFIC																					
BANGLADESH	1975	76.1	144	47	20	2.7	153	43	46	64.8[GG]	9	78	110	32	22[CC]	20	44	11,350	53	OP-DMR	8
FIJI	1974	.6	18	29	7	2.2	41	39	70	12.0	38	44	1,150	79	75[CC]	77	85	2,300	69	OP-DMR	40
INDONESIA	1976	134.7	2,027[K]	38	14	2.4	137	44	46	31.0[M]	18	60	240	48	72[M]	59	87	16,430	12	OP-DMR	28[M]
KOREA, SOUTH	1974	34.8	98	24	7	1.7	47	39	65	3.2	48	45	670	82	88	81	94	1,600	62	OP-DMR	35
MALAYSIA	1974	12.4	330	31	6	2.5	41	43	66	11.3[N]	27	44	860	73	76	60	86	4,350	62	OP-DMR	33[M]
NEPAL	1976	12.9	141	44	20	2.3	152	40	44	61.5	4	93	120	27	13	3	22	38,650	9	OP-DMR	2
PAKISTAN	1976	72.5	804[L]	44	14	3.0	139	46	51	39.0	26	58	170	36	20[CC]	12	43	3,850	28	OP-DMR	5
SRI LANKA	1975	14.0	66	26	9	1.7	47	39	68	6.5	22	54	200	82	76[O]	64	86	6,230	20	OP-DMR	32
THAILAND	1977	43.3	514	33	10	2.3	89	45	61	14.4[O]	13	77	380	71	78[O]	70	87	8,370	22	OP-DMR	33
LATIN AMERICA																					
COLOMBIA	1976	23.0	1,140	33	9	2.4	90	44	61	14	64	31	630	72	73	71	75	1,820	64	OP-DMR	42
COSTA RICA	1976	2.0	51	29	5	2.4	38	44	68	13	41	30	1,040	85	84[O]	84	85	1,550	77	OP-DMR	64
DOMINICAN REP.	1976	4.8	48	39	9	3.0	92	48	58	20	47	58	780	64	66	65	68	1,870	55	OP-DMR	31
MEXICO	1978	62.3	1,973	42	8	3.4	66	46	65	18	64	34	1,090	75	74[O]	70	78	1,840[HH]	62	OP-DMR	30
PANAMA	1977	1.7	76	32	7	2.6	47	43	68	17	50	30	1,310	79	76	76	79	1,270	79	OP-DMR	54
PERU	1977-78	16.0	1,285	40	11	2.9	80	45	56	16	55	40	800	65	72[CC]	67	90	1,580	47	NOP-FPAV	31

NA = not available

A Based on most recent official country or U.N. estimate: mid-1974 estimate for most countries. Each estimate was updated to mid-1976 by applying the same rate of growth as indicated by population change during part or all of the period since 1970.

B Rates refer to 1976 and were obtained by interpolating the 1970-1975 and 1975-1980 estimates of the U.N. to 1976. The 1970-1975 and 1975-1980 rates were used in the medium variant estimates and projections as assessed by the U.N. in 1973 (U.N., *Selected World Demographic Indicators By Countries, 1950-2000*). *The interpolated figures should be considered as rough approximations only.*

C Birth rate minus the death rate. Since the rates were based on unrounded birth and death rates, some rates do not exactly equal the difference between the birth and death rates shown because of rounding.

D Annual number of deaths to infants under one year of age per 1,000 live births.

E The percentage of women currently 15-19 years of age currently in union (as defined by each country), excluding those currently married but separated.

F The percentage of the total population living in areas defined as urban by each country.

G Data refer to either 1975 or 1976.

H Based on an average of life expectancy at age one, infant mortality, and literacy rates.

I Adult literacy is defined by source BB and CC as the percentage of those 15 or more years of age who are able to read and write. The following exceptions hold:
Source BB: Indonesia and Malaysia, 10 or more years of age.
Data from source DD and CC refer to 1970; from source to year of survey. The following exceptions hold:
Source BB: Indonesia and Nepal, 1971; Colombia, 1964; Sri Lanka and Costa Rica, 1963.
Source CC: Banglandesh and Peru, most recent estimate.
Data are from source BB unless otherwise indicated.

J The codes used to signify the government position on family planning are as follows:
OP-DMR: Official policy to reduce population growth for demographic reasons; support family planning to implement this policy.
NOP-FPAV: No official policy or statement on family planning or a stated policy of non-intervention, services freely available from government centers or private clinics.

K Indonesia—including West Irian.

L Pakistan—excluding Jammu, Kashmir, Junagardh, Manavadar, Gilgit, and Baltisan.

M Indonesia—Java & Bali only.

N Malaysia—includes Peninsular Malaysia only.

O Excluding estimated adjustments for undernumberation.

P Data refer to either 1977 or 1978.

SOURCES:

AA Population Reference Bureau, *World Population Data Sheet: 1976; 1978.*

BB United Nations, *Demographic Yearbook, 1976*, T.3 and T.41; *1973*, T.33; *1971* T.1B.

CC World Bank, *World Tables 1980*: Social Indicators, T.3 and T.5.

DD Overseas Development Council. *The United States and World Development: Agenda 1979*, T.A-4.

FF Population Reference Bureau, *Family Planning and Marriage Data Sheet: 1970-1980.*

GG WFS First Country Reports, Various Tables.

HH WHO *World Health Statistics Annual, 1978*, Vol. III, T. 2.1.

Appendix Table A-2: Percent of Ever-Married Women Married 5 Years or More with Specified First Birth Intervals by Age at First Marriage: WFS Countries

ASIA AND THE PACIFIC

COUNTRY AND BIRTH INTERVAL	Total	AGE AT FIRST MARRIAGE						
		<15	15-17	18-19	20-21	22-24	25-29	30+
Bangladesh		(<10)	(10-11)	(12-14)	(15-17)	(18+)		
Negative				Not Available				
< 1 Year	10.4	0.1	2.8	12.5	24.9	43.7		
N	5270	1015	1075	2380	682	118		
Fiji							(25+)	
Negative	5.1	0.9	2.1	4.2	7.4	13.8	27.5	
< 1 Year	7.8	5.8	7.0	8.4	9.0	10.8	9.2	
N	3857	657	1293	878	542	334	153	
Indonesia		(<13)	(13-14)	(15-17)	(18-19)	(20-21)	(22-24)	(25+)
Negative	1.1	1.0	1.1	1.1	0.5	2.1	3.6	1.8
0-7 Months	7.9	4.3	8.7	8.9	8.9	9.6	11.0	8.9
N	7492	1653	1515	2693	857	531	115	127
Korea, South								
Negative	1.3	0.0	0.9	0.8	1.4	2.1	2.8	0.0
0-7 Months	4.4	0.8	1.1	3.3	5.2	8.3	11.1	0.0
N	4162	124	1019	1069	966	760	217	7
Malaysia								
Negative	0.6	0.3	0.4	1.0	0.2	1.4	0.0	0.0
0-7 Months	10.4	6.3	10.5	13.1	11.8	10.9	7.1	8.9
N	4634	725	1604	932	574	514	240	45
Nepal			(15-19)		(20-24)			
Negative	0.8	0.1	0.5		3.6		9.7	27.8
< 1 Year	2.5	0.8	3.9		6.1		6.9	0.0
N	4842	2513	1828		411		72	18
Pakistan								
Negative								
< 1 Year				Not Available				
N								
Sri Lanka								
Negative	1.8	1.8	2.1	1.2	1.0	2.0	2.4	4.9
0-7 Months	5.6	6.2	6.2	6.5	6.4	3.8	3.8	0.8
N	5264	760	1437	984	764	661	505	148
Thailand								
Negative	4.5	0.5	2.9	5.0	5.6	6.6	9.2	4.8
0-7 Months	7.1	4.0	6.4	8.4	6.4	7.7	10.6	7.1
N	2977	200	941	739	551	363	141	42

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COUNTRY AND BIRTH INTERVAL	Total	AGE AT FIRST MARRIAGE						
		<15	15-17	18-19	20-21	22-24	25-29	30+
Colombia								
Negative	9.6	3.5	5.7	8.6	11.4	12.9	18.6	38.5
0-7 Months	10.0	11.4	7.9	11.3	11.1	10.0	11.8	5.8
N	2253	257	659	484	341	284	171	57

COUNTRY AND BIRTH INTERVAL	Total	<15	15-17	18-19	20-21	22-24	25-29	30+
Costa Rica*								
Negative	13.2	0.6	5.9	10.5	11.8	21.9	29.4	41.7
0-7 Months	13.0	6.5	13.6	14.7	14.5	14.1	10.4	5.6
N	2417	168	656	525	414	361	221	72
Dominican Republic								
Negative	2.3	0.0	1.6	1.3	4.9	7.4	6.7	12.5
0-7 Months	4.0	4.3	3.0	6.3	3.3	1.1	6.7	12.5
N	1158	211	437	239	123	95	45	8
Mexico								
			(15-19)		(20-24)			
Negative	4.8	1.6	3.2		6.8	15.2		25.9
0-7 Months	7.5	6.5	7.4		9.3	4.1		7.4
N	4826	752	2603		1114	270		21
Panama*								
Negative	7.5	0.5	5.7	7.9	9.4	12.6	16.6	
0-7 Months	10.4	7.1	9.0	13.4	11.3	12.9	7.5	(25+)
N	2670	368	827	591	362	348	174	16.6
Peru								
Negative	13.1	5.8	9.4	11.9	16.5	16.2	23.3	37.8
0-7 Months	14.9	12.9	14.1	17.0	16.8	16.3	10.5	7.1
N	15361	1600	4560	3432	2424	1944	1118	283

*Women 20-49
Sources: WFS First Country Reports, Table 2.1.1; Except for Fiji (Table E9A) and Indonesia (Table 3.5.1)

Appendix Table A-3: Percent Distribution of Women by Marital Status, Five-Year Age Groups WFS Countries

	No. of Women	Single	Ever-Married	Currently Married	In Consensual Union	Widowed/Divorced Or Separated
ASIA AND THE PACIFIC						
Bangladesh						
10-14	2463	91.2	8.8	8.2	—	.6
15-19	1742	29.8	70.2	64.8	—	5.4
20-24	1414	4.6	95.4	98.3	—	5.1
25-29	1189	1.0	99.0	92.0	—	6.9
30-34	799	0.2	99.8	90.7	—	9.0
35-39	708	0.4	99.6	84.4	—	15.2
40-44	645	0.2	99.8	78.7	—	21.1
45-49	563	0.0	100.0	71.0	—	28.9
50-54	405	0.5	99.5	63.1	—	36.3
15-49	7060	40.4	91.5	81.2	—	10.3
Source: Table II.4-WFS, First Country Report						
Fiji						
15-19	1948	87.7	12.3	12.0	—	.3
20-24	1448	34.5	65.5	61.4	—	4.1
25-29	1210	9.2	90.8	86.0	—	4.8
30-34	1024	3.6	96.4	92.3	—	4.1
35-39	787	3.3	96.7	90.7	—	6.0
40-44	647	2.0	98.0	89.0	—	9.0
45-49	458	1.1	98.9	89.5	—	9.4
50-54	579	2.2	97.8	77.2	—	20.5
15-49	7522	32.1	68.1	63.9	—	4.2
Source: Table B5, B6-WFS, First Country Report						

(continued)

	No. of Women	Single	Ever-Married	Currently Married	In Consensual Union	Widowed/Divorced Or Separated
Indonesia						
10-14	3126	98.5	1.5	1.1	—	.4
15-19	2743	62.6	37.4	31.0	—	6.4
20-24	2145	20.2	79.8	72.3	—	7.4
25-29	1723	5.1	94.9	84.4	—	10.5
30-34	1558	2.0	98.0	87.5	—	10.5
35-39	1533	1.5	98.5	85.8	—	12.7
40-44	1332	.8	99.2	80.3	—	18.9
45-49	1033	.7	99.3	74.4	—	24.9
50-54	1266	.6	99.4	59.0	—	40.4
15-49	12067	44.7	80.8	69.4	—	11.5
Source: Table 0.1.1-WFS, First Country Report						
Korea, South						
15-19	5765	96.7	3.3	3.2	—	.1
20-24	4233	55.3	44.7	43.7	—	1.0
25-29	3999	10.0	90.0	87.5	—	2.5
30-34	3348	1.4	98.6	94.1	—	4.4
35-39	3272	0.6	99.4	91.5	—	7.8
40-44	2734	0.3	99.7	86.6	—	13.0
45-49	2204	0.3	99.7	76.6	—	23.0
50-54	1991	0.6	99.4	64.9	—	—
15-49	25555	32.9	67.1	61.6	—	5.5
Source: Table II.4-WFS, First Country Report						
Malaysia						
15-19	2442	88.1	11.9	11.3	—	.6
20-24	1841	46.8	53.2	51.0	—	2.1
25-29	1484	17.6	82.4	78.7	—	3.7
30-34	1214	7.1	92.9	88.5	—	4.4
35-39	1174	3.5	96.5	89.5	—	7.0
40-44	920	1.6	98.4	86.2	—	12.2
45-49	786	0.6	99.4	79.5	—	19.8
50-54	688	1.2	98.8	73.2	—	25.6
15-49	9861	34.7	65.3	60.1	—	5.2
Source: Table WFS-Special Tabulations						
Nepal						
15-19	1490	37.3	62.7	61.5	—	1.2
20-24	1461	6.0	94.0	92.6	—	1.4
25-29	1243	1.8	98.2	95.7	—	2.5
30-34	926	1.2	98.8	93.4	—	5.4
35-39	792	0.6	99.4	90.0	—	9.3
40-44	794	0.5	99.5	83.9	—	15.6
45-49	569	0.7	99.3	76.4	—	22.8
50-54	619	0.8	99.2	66.1	—	33.1
15-49	7275	9.6	90.5	84.4	—	6.1
Source: Table II.4-WFS, First Country Report						
Pakistan						
10-14	1915	99.0	1.0	1.0	—	0.0
15-19	1475	62.0	38.0	38.0	—	0.0
20-24	1116	22.0	78.0	75.0	—	2.9
25-29	1031	9.0	91.0	87.0	—	4.0
30-34	903	3.0	97.0	92.0	—	5.0
35-39	629	2.0	98.0	92.0	—	5.9
40-44	656	1.0	99.0	89.0	—	9.9
45-49	515	1.0	99.0	84.0	—	14.9
50+	1581	1.0	99.0	56.0	—	43.0
15-49	6325	50.9	79.4	74.6	—	4.7
Source: Table 1.3-WFS, First Country Report						

	No. of Women	Single	Ever-Married	Currently Married	In Consensual Union	Widowed/Divorced Or Separated
Sri Lanka						
10-14	3143	99.9	.1	.1	—	—
15-19	2700	93.2	6.8	6.5	—	.2
20-24	2417	60.6	39.4	38.0	—	1.3
25-29	1966	31.9	68.1	65.0	—	3.1
30-34	1452	13.7	86.3	82.2	—	4.1
35-39	1308	5.8	94.2	85.6	—	8.6
40-44	1055	4.6	95.4	81.1	—	14.2
45-49	1061	2.1	97.9	81.7	—	16.2
50-54	757	2.1	97.9	75.7	—	22.2
15-49	11959	67.7	58.6	53.6	—	5.0
Source: Table II.3-WFS, First Country Report						
Thailand						
15-19	1517	84.6	15.4	14.4	—	1.0
20-24	1073	41.5	58.5	54.9	—	3.6
25-29	927	19.2	80.8	76.7	—	4.1
30-34	722	10.1	89.9	83.9	—	5.9
35-39	642	6.4	93.6	86.6	—	7.0
40-44	594	3.9	96.1	85.2	—	10.9
45-49	481	3.3	96.7	84.0	—	12.7
50-54	411	3.9	96.1	73.7	—	22.4
15-49	5956	34.9	65.4	60.3	—	5.1
Source: Table 0.1.3-WFS, First Country Report						

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Colombia						
15-19	367158	85.8	14.2	8.0	5.8	1.2
20-24	289999	48.3	51.7	34.9	14.5	2.4
25-29	227693	27.3	72.7	51.6	17.4	3.7
30-34	159044	16.2	83.8	64.1	14.7	5.0
35-39	165873	15.7	84.3	60.6	16.3	7.4
40-44	120063	13.4	86.6	61.5	13.0	12.0
45-49	111727	16.2	83.8	56.3	9.7	17.7
50-54	92964	12.9	87.1	53.0	7.7	26.5
15-49	1441557	42.6	58.2	40.7	12.5	5.0
Source: Table 7-WFS, First Country Report						
Costa Rica						
15-19	1491	85.4	14.6	9.7	3.5	1.4
20-24	1033	47.6	52.4	39.4	9.0	4.0
25-29	858	27.7	72.3	53.1	11.4	7.7
30-34	668	14.1	85.9	64.7	12.0	9.3
35-39	590	14.2	85.8	63.0	12.7	10.0
40-44	478	11.9	88.1	63.0	12.8	12.3
45-49	443	9.5	90.5	64.3	8.1	18.1
50-54	401	12.7	87.3	59.8	5.5	21.9
15-49	5561	41.0	59.0	43.1	8.9	7.0
Source: Table WFS-Special Tabulations						
Dominican Republic						
15-19	3442	72.6	27.4	2.8	16.8	7.8
20-24	2728	28.8	71.2	13.2	40.7	17.2
25-29	1936	9.8	90.2	25.1	48.3	16.7
30-34	1344	3.4	96.6	32.5	46.0	18.1
35-39	1480	1.6	98.4	42.4	38.9	17.0
40-44	1331	2.0	98.0	41.4	32.7	23.9
45-49	632	2.2	97.8	46.2	24.2	27.4
50-54	766	1.7	98.3	40.5	22.3	35.5
15-49	12893	27.8	72.2	22.1	34.2	15.9
Source: Table II.4-WFS, First Country Report						

	No. of Women	Single	Ever-Married	Currently Married	In Consensual Union	Widowed/Divorced Or Separated
Mexico						
15-19	4158	80.8	19.2	12.9	4.7	1.5
20-24	3107	37.8	62.2	47.2	9.4	5.5
25-29	2456	16.4	83.6	68.1	9.4	6.0
30-34	1914	8.7	91.3	72.5	10.8	7.9
35-39	1883	6.4	93.6	72.1	11.2	10.3
40-44	1406	5.2	94.8	74.0	8.6	12.2
45-49	1249	4.2	95.8	69.0	8.1	18.6
50-54	1105	5.1	94.9	62.4	7.5	25.0
15-49	16173	33.1	66.9	51.5	8.4	7.0
Source: Table II.4-WFS, First Country Report						
Panama						
15-19	1361	80.3	19.7	5.6	11.1	2.3
20-24	924	37.6	62.4	25.6	29.1	7.6
25-29	807	12.6	87.4	36.3	38.4	12.6
30-34	747	8.8	91.2	40.8	37.6	12.7
35-39	542	4.6	95.4	47.8	32.1	15.5
40-44	416	5.0	95.0	44.0	35.3	15.6
45-49	359	1.9	98.1	46.0	29.5	22.6
50-54	575	4.9	95.1	42.4	26.3	26.4
15-49	5156	32.2	78.2	29.5	27.9	10.2
Source: Table WFS-Special Tabulations						
Peru						
15-19	8462	86.1	13.9	5.8	6.5	1.6
20-24	6795	48.5	51.5	30.3	16.3	4.9
25-29	5212	23.4	76.6	53.1	16.8	6.7
30-34	3887	10.9	89.1	65.1	15.8	8.2
35-39	3893	8.3	91.7	69.7	12.9	9.1
40-44	3266	5.1	94.9	70.7	12.8	10.4
45-49	3030	5.2	94.8	66.0	13.2	15.6
50-54	2491	3.6	96.4	64.6	9.7	22.1
15-49	34545	37.3	62.7	43.0	12.9	6.7
Source: Table 0.1.2A-WFS, First Country Report						

Appendix Table A-4: Percent Distribution of Men by Marital Status Five-Year Age Groups: WFS Countries

	No. of Men	Single	Currently Married	Consensual Union
ASIA AND THE PACIFIC				
Bangladesh				
15-19	1687	93.0	5.9	—
20-24	1398	61.5	36.6	—
25-29	1143	20.5	78.0	—
30-34	899	5.1	92.2	—
35-39	879	1.4	97.3	—
40-44	657	1.0	96.0	—
45-49	596	1.1	96.3	—
50-54	504	.2	96.4	—
Source: Table II.4-WFS, First Country Report				

	No. of Men	Single	Currently Married	Consensual Union
Fiji				
15-19	1900	99.0	0.9	—
20-24	1370	67.5	31.2	—
25-29	1116	23.5	73.7	—
30-34	957	10.4	88.7	—
35-39	831	4.2	93.6	—
40-44	634	4.6	93.8	—
45-49	636	1.3	95.6	—
50-54	—	—	—	—
Source: Table B6.A-WFS, First Country Report				
Indonesia				
15-19	2482	95.7	3.4	—
20-24	1914	55.3	40.3	—
25-29	1541	18.0	78.5	—
30-34	1404	4.6	91.8	—
35-39	1539	1.6	95.0	—
40-44	1232	1.4	94.6	—
45-49	1180	0.5	96.8	—
50-54	997	0.2	93.0	—
Source: Table 0.1.1-WFS, First Country Report				
Korea, South				
15-19	5971	99.6	.3	—
20-24	2987	90.9	8.8	—
25-29	3710	43.3	55.9	—
30-34	3771	5.5	92.7	—
35-39	3412	1.4	96.6	—
40-44	2636	.6	96.9	—
45-49	2014	.3	97.1	—
50-54	1752	.3	95.8	—
Source: Table II.4-WFS, First Country Report				
Malaysia				
15-19	2391	99.0	1.0	—
20-24	1570	80.6	19.0	—
25-29	1322	35.9	63.2	—
30-34	1144	12.3	86.6	—
35-39	1104	5.0	92.8	—
40-44	811	2.6	95.6	—
45-49	769	1.3	95.8	—
50-54	636	1.1	95.4	—
Source: WFS Special Tabulations				
Nepal				
15-19	1446	73.2	26.1	—
20-24	1248	32.8	65.1	—
25-29	1100	8.8	87.1	—
30-34	936	3.2	93.3	—
35-39	742	2.0	93.3	—
40-44	755	1.3	93.9	—
45-49	571	1.1	91.6	—
50-54	604	1.2	90.9	—
Source: Table II.4-WFS, First Country Report				
Pakistan				
15-19	1437	94.0	6.0	—
20-24	1086	67.0	32.0	—
25-29	1023	32.0	65.0	—
30-34	932	15.0	81.0	—
35-39	804	6.0	89.0	—
40-44	683	4.0	91.0	—
45-49	520	3.0	92.0	—
50+	2100	2.0	80.0	—
Source: Table 1.4-WFS, First Country Report				

(continued)

	No. of Men	Single	Currently Married	Consensual Union
Sri Lanka				
15-19	2760	99.7	.2	—
20-24	2334	88.5	11.2	—
25-29	1810	57.5	42.0	—
30-34	1401	26.8	72.7	—
35-39	1325	12.2	86.6	—
40-44	1029	6.7	90.6	—
45-49	1047	7.1	89.2	—
50-54	881	4.2	90.5	—
Source: Table II.3-WFS, First Country Report				
Thailand				
15-19	1458	96.9	2.9	—
20-24	1033	63.9	35.5	—
25-29	784	25.9	72.8	—
30-34	718	8.1	90.9	—
35-39	645	5.9	92.1	—
40-44	562	2.8	94.1	—
45-49	493	2.4	93.7	—
50-54	387	1.8	88.6	—
Source: Table 0.1.3-WFS, First Country Report				

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Colombia				
15-19	340960	98.0	0.7	1.3
20-24	243904	74.8	15.8	8.9
25-29	190834	37.5	44.5	17.1
30-34	154081	19.3	61.4	18.0
35-39	147407	14.2	65.0	18.8
40-44	117508	10.0	71.6	15.5
45-49	102720	9.0	68.7	16.5
50-54	80613	8.0	72.6	12.1
Source: Table 7-WFS, First Country Report				
Costa Rica				
15-19	1471	98.0	1.2	.7
20-24	1144	70.3	21.8	6.1
25-29	742	33.0	54.7	10.6
30-34	603	16.4	67.3	11.3
35-39	553	9.9	70.0	15.0
40-44	463	12.5	70.6	11.2
45-49	409	6.8	77.5	10.8
50-54	364	7.4	72.8	12.4
Source: WFS Special Tabulations				
Dominican Republic				
15-19	3154	97.5	.1	1.6
20-24	2395	68.3	5.1	19.1
25-29	1752	32.4	16.2	40.5
30-34	1301	10.8	27.2	51.7
35-39	1279	7.0	33.9	51.1
40-44	1442	4.0	40.8	45.4
45-49	676	4.9	48.2	37.3
50-54	797	3.9	48.9	35.3
Source: Table II.4-WFS, First Country Report				

	No. of Men	Single	Currently Married	Consensual Union
Mexico				
15-19	4020	94.4	3.0	1.7
20-24	2898	59.0	31.6	7.7
25-29	2309	26.0	61.4	10.2
30-34	1849	11.0	77.1	9.4
35-39	1712	8.4	77.4	11.3
40-44	1452	5.0	82.2	11.7
45-49	1277	4.2	81.8	9.3
50-54	986	3.8	79.7	9.4
Source: Table II.4-WFS, First Country Report				
Panama				
15-19	1290	97.7	.8	3.9
20-24	1031	69.6	11.2	16.0
25-29	823	36.2	29.4	28.3
30-34	656	14.0	40.2	38.4
35-39	662	11.3	41.7	38.1
40-44	513	9.9	44.2	35.9
45-49	405	8.1	46.9	32.6
50-54	392	5.6	48.2	32.4
Source: WFS Special Tabulations				
Peru				
15-19	8127	97.6	0.7	1.6
20-24	6342	73.9	13.9	10.7
25-29	4630	34.4	45.6	18.1
30-34	3866	13.7	63.3	19.6
35-39	3782	7.1	71.8	17.4
40-44	3171	5.1	76.7	13.8
45-49	3090	4.7	77.1	13.2
50-54	2358	4.8	77.7	10.8
Source: Table 0.1.2-WFS, First Country Report				

Appendix Table A-5: Estimated Percent of Women Ever-Married Before Age 20 by Age at the Time of the Survey: WFS Countries

	Age at Time of Survey					
	45-49	40-44	35-39	30-34	25-29	20-24
ASIA AND THE PACIFIC						
Bangladesh	97.9	99.0	98.5	99.1	97.7	92.9
Fiji	66.4	67.9	67.3	66.1	56.6	51.1
Indonesia	84.7	86.9	85.3	83.5	80.7	70.3
Korea, South	87.5	69.4	45.0	25.0	18.3	17.6
Malaysia	73.7	71.0	64.1	53.3	42.7	37.2
Nepal	81.2	82.6	82.2	86.3	85.4	86.5
Pakistan	84.2	87.3	83.3	76.4	71.0	67.1
Sri Lanka	55.0	51.8	48.4	44.1	31.4	25.0
Thailand	51.3	54.2	52.2	49.9	46.7	43.8
LATIN AMERICA						
Colombia	36.3	44.1	49.5	44.9	43.8	40.4
Costa Rica	36.1	41.4	43.7	40.5	34.2	38.2
Dominican Republic	63.5	71.9	68.4	68.2	68.4	59.2
Mexico	54.8	59.9	57.5	56.7	52.2	49.3
Panama	56.9	59.4	56.3	54.0	50.5	43.4
Peru	46.9	50.1	52.5	48.9	45.4	38.0

Source: Derived from WFS First Country Reports' Table 1.1.2; except Fiji (Table D2), Thailand (Table 1.1.3) and Panama (Special Tabulations).

Appendix Table A-6: Mean Age at First Marriage for Ever-Married Women Age 25-29 Who Married Before Age 25 by Educational Level and Type of Place of Childhood Residence: WFS Countries

	Education		Residence	
ASIA AND THE PACIFIC				
Bangladesh:*	None	11.7	Urban	13.3
	Primary	12.9	Rural	11.9
	Secondary	14.3		
	Total	12.0		
Fiji:	None	15.7	Urban	18.3
	Primary	17.9	Rural	17.5
	Secondary	20.1		
	Total	17.6		
Indonesia:	None	14.9	Urban	17.0
	Primary	15.4	Rural	15.2
	Secondary	19.9		
	Total	15.3		
Korea, South:	None	17.5	Urban	20.2
	Primary	19.5	Rural	19.2
	Secondary	21.2		
	Total	19.4		
Malaysia:	None	16.7	Urban	18.9
	Primary	17.9	Rural	17.2
	Secondary	21.0		
	Total	17.6		
Nepal:	None	15.0	Urban	NA
	Primary	15.2†	Rural	NA
	Secondary	18.2†		
	Total	15.0		
Pakistan:	None	16.3	Urban	16.5††
	Primary	17.2	Rural	16.4††
	Secondary	18.6		
	Total	16.4		
Sri Lanka:	None	16.6	Urban	18.8
	Primary	17.8	Rural	18.1
	Secondary	19.9		
	Total	18.2		
Thailand:	None	17.9	Urban	19.9
	Primary	18.7	Rural	18.6
	Secondary	21.0		
	Total	18.7		
LATIN AMERICA				
Colombia:	None	17.5	Urban	18.4
	Primary	18.4	Countryside	18.2
	Secondary	19.5	Village	18.3
	Total	18.4		
Costa Rica:	None	18.3	Urban	19.4††
	Primary	18.6	Rural	18.5††
	Secondary	20.2		
	Total	19.0		
Dominican Republic:	None	16.9	Urban	18.1
	Primary	17.1	Countryside	17.1
	Secondary	20.2	Village	17.3
	Total	17.3		
Mexico:	None	16.7	Urban	18.8
	Primary	18.0	Countryside	17.3
	Secondary	20.0	Village	17.8
	Total	17.9		

	Education		Residence	
Panama:	None	17.2	Urban	19.1
	Primary	17.5	Countryside	17.6
	Secondary	19.6	Village	18.5
	Total	18.2		
Peru:	None	17.6	Urban	19.2
	Primary	18.3	Countryside	18.0
	Secondary	20.1	Village	18.5
	Total	18.4		

NA = not available.
*Women 20 to 49 at time of survey who married before age 20.
†Fewer than 100 cases.
††Type of place of current residence.
Sources: WFS First Country Reports, Table 1.1.3; except Fiji (Table D3) and Thailand (Table 1.1.4).

Appendix Table A-7: Percent Distribution of Ever-Married Women According to Status of First Marriage: WFS Countries

ASIA AND THE PACIFIC	Married	Widowed	Divorced		Separated	N	Remarried*
Bangladesh	78.5	9.9	10.5		1.1	(6515)	12.8
Fiji	87.1	3.3		9.6†		(4928)	7.9
Indonesia	59.7	7.5	30.2		2.7	(9123)	31.6
Korea, South	89.6	7.2		3.2†		(5420)	4.2
Malaysia	81.3	6.2		12.4†		(6308)	12.7
Nepal	NA	NA	NA		NA	NA	NA
Pakistan	90.0	6.0	2.0		2.0	(4949)	4.0
Sri Lanka	87.7	6.2		6.1†		(6577)	4.0
Thailand	82.1	5.6		12.3†		(3776)	11.8
LATIN AMERICA							
Colombia	75.1	5.2		19.6†		(3302)	13.6
Costa Rica	81.4	3.1	2.2		13.3	(3037)	8.6
Dominican Republic	56.2	3.3	3.7		36.8	(2249)	32.5
Mexico	83.8	4.9	1.5		9.8	(6255)	7.5
Panama	64.7	2.6		32.7†		(3203)	24.8
Peru	80.5	5.1	0.6		13.8	(5640)	11.4

NA = not available.
*As a percent of all ever-married women.
†Individual data not available for categories "Divorced" and "Separated."
Sources: WFS First Country Reports, Table 1.2.1; except Fiji (Table D4).

Appendix Table A-8: Percent of Women Currently Married by Age and Marital Age-Specific Fertility Rates at Time of the WFS Survey: Nepal and Sri Lanka

	Age Group	Marital Age-Specific Fertility Rates (per woman)	Percent of Women Currently Married
NEPAL:	15-19	.138	61.5
	20-24	.306	92.6
	25-29	.314	95.7
	30-34	.261	93.4
	35-39	.226	90.0
	40-44	.093	83.9
	45-49	.033	76.4

(continued)

	Age Group	Marital Age-Specific Fertility Rates (per woman)	Percent of Women Currently Married
SRI LANKA:	15-19	.339	6.5
	20-24	.357	38.0
	25-29	.240	65.0
	30-34	.189	82.2
	35-39	.139	85.6
	40-44	.053	81.1
	45-49	.007	81.7

Sources: WFS First Country Reports for:
1) Nepal, Table 5.7 and Table II.4
2) Sri Lanka, Table 5.13 and Table II.3

Appendix Table A-9: Mean Number of Children Ever Born to Ever-Married Women, 45-49, by Age at First Marriage: WFS Countries—Asia and the Pacific

(Age at First Marriage)	Bangladesh (< 10 yrs.)	Fiji*	Indonesia	Korea, S.	Sri Lanka
< 15	6.5	7.4	5.4	6.9	7.1
	(10-11)				
15-17	6.8	7.0	5.4	6.2	7.0
	(12-14)				
18-19	6.8	6.0	5.1	5.2	6.3
	(15-17)				
20-21	7.3	5.7	5.1	4.4	5.9
	(18+)†				
22-24	6.3	5.4	4.4	4.1	5.2
25+		3.7	3.2	3.5	3.5
ALL	6.7	6.3	5.2	5.8	5.9

*For women 40-49 years.
†N is less than 20.
Sources: WFS First Country Reports
1) Bangladesh – Table 2.2.4A
2) Fiji – Table E7
3) Indonesia – Table 3.1.3A
4) Korea – Table 2.2.4A
5) Sri Lanka – Table 2.2.4A

Appendix Table A-10: Mean Number of Children Ever Born to Ever-Married Women at Selected Intervals Since First Marriage by Age at First Marriage: WFS Countries

ASIA AND THE PACIFIC: (Years Since First Marriage)	(Age at First Marriage) .15	15-17	18-19	20-21	22-24	25+
Fiji						
5-9	2.5	2.6	2.6	2.5	2.5	2.7
15-19	5.0	5.2	5.2	4.8	4.8	3.7
Indonesia						
5-9	1.7	2.1	2.2	2.3	2.0	1.8
15-19	4.1	4.4	4.2	4.5	3.7	3.5
Korea, South						
5-9	3.0*	2.8	2.6	2.7	2.8	2.5
15-19	4.4*	4.9	4.6	4.4	4.0	3.6
Malaysia						
5-9	2.8	3.0	3.0	2.8	2.8	2.4
15-19	5.2	5.7	5.6	5.3	4.4	3.6

Years			(Age at First Marriage)			
Nepal			(15-19)		(20-24)	
5-9	1.4		1.9		2.1	1.7
15-19	4.2		4.7		4.5	4.6*
Pakistan						
5-9	2.4	2.4	2.6	2.6	2.3	2.1
15-19	5.3	5.8	5.6	6.0	5.6	4.0*
Sri Lanka						
5-9	2.6	2.5	2.6	2.5	2.3	2.3
15-19	5.1	5.4	5.0	4.9	4.6	3.4
Thailand						
5-9	2.6	2.6	2.6	2.6	2.4	2.3
15-19	4.6	5.3	5.1	5.4	4.4	4.6
LATIN AMERICA:						
Colombia						
5-9	2.8	2.9	2.9	2.6	2.6	2.8
15-19	6.4	5.8	6.1	5.6	5.9	4.4
Costa Rica†						
5-9	2.8	2.5	2.4	2.4	2.5	2.6
15-19	5.7	5.8	5.9	5.4	4.8	4.8
Dominican Republic						
5-9	2.3	2.7	2.8	2.3	2.3	2.7
15-19	5.8	6.2	6.0	5.8	5.2	–
Mexico						
5-9	2.8	3.2	3.2	3.1	2.9	2.8
15-19	6.5	6.5	6.7	5.9	5.3	4.4
Panama†						
5-9	2.8	2.8	2.7	2.5	2.6	2.4
15-19	5.9	5.4	5.4	4.6	3.9	3.3
Peru						
5-9	2.7	3.0	3.1	3.1	2.9	2.6
15-19	6.2	6.2	5.9	5.6	5.7	4.6

*N is less than 20.
†Women 20-49 years old.
Sources: WFS First Country Reports, Table 2.2.3A; except Indonesia (Table 3.1.4A), Fiji (Table E-7) and Peru (Table 2.2.3B).

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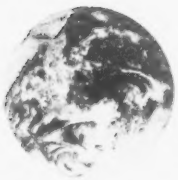

Reports on the World Fertility Survey (2)

Summary of Findings

The World Fertility Surveys provide some of the most extensive and representative data on breast-feeding patterns. This report uses these data to examine the initiation and duration of breast-feeding in nineteen developing countries: ten of these are in Asia, eight in Latin America and the Caribbean, and one in Africa (Kenya). The data reveal considerable diversity among the countries, although breast-feeding is widely practiced in all of them. Among the Asian countries the percentage of babies breast-fed varies from about 98 percent in Bangladesh and Nepal to 74 percent in Malaysia, but the percentage is over 90 in all but two Asian countries. Except for Malaysia, children in these countries are breast-fed for prolonged periods of one to two years. In Kenya, 96 percent of the children are breast-fed and weaning occurs at about 13 months of age. In the Latin American and Caribbean countries included in this report, children are somewhat less likely to be breast-fed. The percent of children breast-fed ranges from 94 percent for Jamaica to 75 percent for Costa Rica, however, it was over 90 percent in only two of the eight Latin American and Caribbean countries. The duration of breast-feeding is also lower in this region; except for Peru, where the average weaning age is 13 months, breast-feeding continues for five to nine months on the average.

Generally, the initiation and duration of breast-feeding in a country varies inversely with its level of economic development. This suggests that breast-feeding will decline as these countries continue to modernize. This trend will be modified and tempered by cultural norms and traditions about infant feeding within the individual countries.

Breast-feeding is beneficial for infant health and nutrition. Prolonged lactation also operates as a child-spacing mechanism because nursing mothers are much less likely to conceive. If the duration of breast-feeding declines with economic development, women will be exposed to the risk of pregnancy much sooner after giving birth. Where this occurs, the annual birth rates could actually rise unless there is a concomitant increase in the use of family planning methods.

Reports on the World Fertility Survey, a series of publications dealing with fertility and family planning policy issues in the developing countries, is published by the Population Reference Bureau with the support of the Demography Division of the Office of Population, U.S. Agency for International Development. These reports are being prepared under contract AID/DSPE-C-0024, "Compilation and Analysis of Population Data."

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Breast-feeding in the Developing World: Current Patterns and Implications for Future Trends

June 1981
Mary Mederios Kent, Research Associate
Population Reference Bureau

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Preface

Breast-feeding in the Developing World: Current Patterns and Implications for Future Trends is the second report in a series based on data resulting from the World Fertility Survey (WFS). Begun in 1972 under the auspices of the International Statistical Institute and with major support from the International Union for the Scientific Study of Population, the United Nations and the United States Agency for International Development, the World Fertility Survey is an international research effort to encourage and assist countries in collecting and analyzing basic demographic data and more specific data on national patterns of fertility behavior.

The data are collected by trained interviewers, almost all women, who administer the WFS "core questionnaire" modified and translated for local use. An average survey involves detailed interviews with about 5,000 women. Tabulation of survey results has been standardized, facilitating international comparisons.

The first survey was conducted in Fiji in 1974. Within the next few years over 40 developing countries are expected to complete the survey and publish a First Country Report which provides some analysis of the data and a large number of tabulations. This Population Reference Bureau series is based primarily on the data presented in these First Country Reports and other WFS publications.

Acknowledgements

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Introduction

In the past decade there have been numerous reports in the popular press that women in the developing world are abandoning the custom of breast-feeding their children in favor of more modern bottle-fed substitutes. The existence of this trend has been widely accepted, although the supporting evidence is still sparce. This situation has been viewed with alarm by nutritionists and health professionals because there are potential health risks associated with bottle-feeding in less developed countries. The interest of demographers has been aroused because of the possible impact on population growth—the length of time a mother continues to nurse her baby can affect the spacing and number of additional children she has. Meanwhile, international infant food manufacturing companies are gaining a wider market for their products among the burgeoning Third World populations, and many women in those countries are apparently delighted to find a convenient, modern substitute for nursing.

There are many and complex reasons why women in the developing world might seek an alternative to the prolonged periods of breast-feeding common in traditional societies. The baby bottle and packaged formulas share some of the same aura of modern science and technology as automobiles or television. Like them, they are a mixed blessing for people with low living standards and lower monetary incomes. They bestow "status," as proof not only of wealth but of participation in the modernization process. Bottle-feeding grants women a degree of freedom because they need not be physically present for their babies to be fed. This increases their potential participation in the labor force or other activities outside the home.

While the popularity of breast-feeding may be declining in the developing countries, an opposite trend has been cited in many developed countries.[1,2] A recent study by the U.S. National Center for Health Statistics, for example, revealed that American women are choosing to breast-feed their babies to a much greater extent now than they did ten to twenty years ago. This is a complete reversal of the trend away from breast-feeding which began in earnest during the 1930s among upper and middle class women. At that time hospital procedures, physician advice, and the current fashion combined to encourage bottle- rather than breast-feeding, beginning with the infant's first meal. During the 1940s, only about one-half of American babies were breast-fed. By the late 1960s, less than one-fourth were breast-fed, but a reversal in this trend had already begun among the most educated women.[3] By 1975, the new attitudes which had originated in that elite group had gained acceptance with enough of the general public to produce a measurable increase in the proportion of women breast-feeding their babies to 35 percent nationally.[4]

This re-evaluation of breast-feeding reflects the current interest among Americans in a greater personal involvement in pregnancy and childbirth, as well as the general climate of mistrust in the interference with natural processes—a legacy of the environmental movement, and the new acceptance of the human body which accompanied the "sexual revolution." In addition to these ideological shifts, recent medical research has revealed new evidence of physiological and psychological advantages of breast- over bottle-feeding. Not only does human milk provide the necessary nutritional needs for infants, it transmits certain antibodies from mother to child. The physical contact involved in nursing promotes an emotional bonding between mother and baby. In the industrialized world breast-feeding is now widely recognized as being not only more natural but more healthy physically and emotionally.

Will the developing countries follow the same course as industrialized countries? That is, will the practice of breast-feeding decline to the low levels of the developed countries, then experience a reversal? Alternatively, will the new favorable attitudes toward breast-feeding in developed countries be exported to the Third World, eventually trickling down to the general population to arrest the declining trend? The answers to these questions rest on the perceptions of "modernity" within these transitional societies and on how closely they follow the Western development model.

Breast Milk Substitutes

Most cultures have special soft foods for infants such as cereal gruels and sugar water, but the recent decline in breast-feeding is closely

associated with the availability of prepared infant foods and modern baby bottles. The international manufacturers of infant foods and formulas have carried out vigorous promotional campaigns in many developing countries making their products available to ever-expanding areas. They have been accused of using unfair marketing techniques by consumer groups and health professionals, sparking off what has been termed "the baby bottle debate."

The crux of this issue is whether the use of breast milk substitutes are appropriate at all for women in developing countries. Encouragement of their use may be viewed as an unwelcome intrusion by international business interests. The manufacturers argue that there is no nutritional cost to the introduction of prepared formulas to new-borns and point out that most pediatricians agree that after four to six months of age, breast milk is not sufficient to promote maximum physical development.[5] Babies receiving only mother's milk until one or two years of age are sometimes referred to as being "starved at the breast."

Advocates of the "breast is best" position are countering the formula manufacturers' marketing schemes with some advertising of their own. Numerous groups, some with funds from national and international development agencies, have launched educational media campaigns to encourage breast-feeding. Many countries now include a breast-feeding project within maternal and child health programs. Both sides of the baby bottle controversy have been aired in a U.S. Senate Subcommittee Hearing. During the 33rd World Health Assembly meetings in 1980, the World Health Organization recommended the adoption of an international code for the marketing of breast milk substitutes which would inform the purchaser that human milk is the best food for infants under six months old.

Consequences of Bottle-feeding

The reliance on prepared formulas by poor families, living in the unsanitary conditions so prevalent in developing countries, leads to both economic and health problems. The cost of human milk can be counted in terms of extra calories consumed and the time required to nurse. However, expensive prepared formulas take away money from other necessary items. Often mothers try to make the formula or powdered milk last longer by diluting it with water, meal, or flour. This impairs the food value, leading to slower physical development and possible malnutrition in the infant. Of more immediate consequence to infant health, many women lack the facilities to properly sterilize bottles and nipples or to refrigerate mixed formula or milk. The water used to mix or dilute formulas may be unsanitary. This often results in gastrointestinal disease, one of the major causes of infant deaths in developing countries.

The fervor of the baby bottle debate notwithstanding, the existence of a decline in breast-feeding in developing countries has not been well documented. Until recently, evidence was drawn from a number of small surveys or hospital studies which may not be representative. But because of current interest in this topic, recent national and regional surveys of child-bearing patterns in both developed and developing countries have included questions on breast-feeding. These surveys have provided some of the most valuable empirical evidence to date of the prevalence and duration of breast-feeding. The World Fertility Survey is among these. This report will use the results of the WFS to trace patterns of breast-feeding in nineteen developing countries, focusing on the two most important indicators: the extent to which mothers initiate breast-feeding and the duration (the length of time breast-feeding is continued). Both are subject to a number of interacting variables.

The "Socio-biological" Variable

It is estimated that at least 90 percent of all women have the ability to nurse their children. The supply and nutritional content of human milk are the result of the complex interplay of biology and behavior. Lactation is called a "socio-biological" variable because, while the ability to nurse is a human characteristic, performance is affected unconsciously by emotional response and consciously by the mother's decision to initiate or terminate breast-feeding.

The flow of milk is governed by a "let down" reflex of the mother. Most of the problems associated with the ability to nurse apparently arise from a malfunction of this reflex and are usually a response to mental stress.[6]

The supply of milk produced by the mother fluctuates in response to the frequency and intensity of the baby's nursing. More milk is produced as sucking intensifies, but if the baby becomes ill or if his diet is supplemented by weaning foods or infant formula, the less frequent breast-feeding will cause the amount of milk produced by the mother to diminish.

The amount of milk is also affected by the mother's health and nutritional status. Among populations in which few people receive even the minimum caloric requirements, lactation is an additional burden and extremely undernourished women produce somewhat less milk. The effect of certain drugs, most notably oral contraceptives, on milk supply has spurred research and development of pills more appropriate for nursing mothers.

Breast-feeding and Population Growth

Birth Intervals

The influence of breast-feeding on the number of births in a population arises from its impact on the length of time between births. This can affect the number of children a woman bears during her reproductive lifetime. For example, if a woman marries at age 21 and remains in that union until she reaches menopause at age 45, theoretically she is exposed to the risk of conception for 24 years.* If the average interval between births is two years, she could bear 12 children during her reproductive lifetime. However, if the average interval is three years, she could bear only eight children. The interval between births affects a society's rate of population growth by determining the number of years between subsequent generations. Also, in a given population, fewer births per year occur when women generally have babies every three years rather than every two years. As a consequence both the annual birth rate and population growth rate will be lower with longer birth intervals.

The birth interval consists of three broad stages, beginning with a live birth, followed by: (1) post-partum amenorrhea (sterility), (2) a fecund period after ovulation and menstruation have resumed, and (3) conception and pregnancy. The interval closes with a new live birth. The length of the birth interval is determined by the first two stages since pregnancy, except when interrupted by miscarriage, is a constant of about nine months.

The first stage of the interval, the amenorrheic period, lasts two to three months after giving birth for all mothers. Breast-feeding can further delay the return of ovulation and menstruation.

The second, or fecund, stage marks the time when a woman is biologically capable of conceiving. The length of this stage is affected by factors governing her exposure to conception—that is, frequency of intercourse and use of contraception.

Lactation's Effects on Fertility

The effect of lactation on fertility operates through two avenues. First, it is believed that the child's suckling stimulates release of the ovulation-inhibiting hormone prolactin in the mother. Greater amounts of the hormone are released the more frequently the child is nursed. Where no supplemental baby foods are given and nursing is "on demand" including several nightly feedings, the "contraceptive effect" of lactation is stronger than in cultures in which babies rely only partially on breast milk.

Second, lactation affects fertility through its association with sexual abstinence. In many societies, notably in sub-Saharan Africa, cultural norms prohibit sexual intercourse for nursing mothers. Whether abstinence is practiced expressly to avoid pregnancy or because intercourse is believed to "sour the milk" of a nursing mother, the result is the same. This taboo has the beneficial health effect of protecting a woman from becoming pregnant before both she and her baby are strong enough to experience the consequences—the physical burden of pregnancy for the woman and the loss of breast milk for the infant. In addition, it increases the birth interval, indirectly limiting the number of children born.

Sexual abstinence is observed by nursing

*Realistically, the probability that the woman will bear children would not be constant over this 24-year period. This is because physiological impairments to the ability to conceive increase with age, expecially after age 30, and because the frequency of sexual intercourse tends to decline as the marital duration increases.

mothers for as long as two or three years among the Yoruba of Nigeria, the Javanese of Indonesia, and a number of other cultures.[7,8] But demographers and anthropologists agree that this norm is breaking down in many traditional societies under the influence of urbanization and the infusion of Western ideas about family structure. If women begin to breast-feed for shorter lengths of time, the period of abstinence will also decline and this form of insurance against pregnancies occurring very close together will certainly diminish.

Extreme malnutrition in the mother can also have an effect on the duration of post-partum sterility.[9] Because it is believed that a minimum weight/height ratio is needed for monthly ovulation, the extra calories burned to keep producing milk can push an extremely malnurished mother below this minimum weight, delaying the return of menstruation even longer than the effects of lactation alone.

It is duration rather than the incidence of lactation that influences the length of post-partum sterility. A number of studies have produced estimates of the number of months that this period is extended by lactation. Generally, one month of breast-feeding adds between one-quarter and three-quarters months to this sterile period.[10,11,12] The impact of breast-feeding in prolonging this protection against pregnancy is minimal if the duration of lactation is less than six months[13] and increases significantly only after about ten months.

But the effect of lactation on post-childbirth sterility levels off as the mother continues nursing her child over a long period, at least partly because the child will eventually be given supplemental foods, and the frequency of breast-feeding will diminish. Protection against pregnancy rarely lasts for more than a year and a half, even when breast-feeding takes place for two years or longer.[14] Thus, the effect of breast-feeding on the length of post-partum sterility is greatest for median breast-feeding durations of ten to twenty months. For durations above and below that interval, the impact may be only half as large.[15] When considering the demographic consequences of changing breast-feeding patterns, it is important to remember that a decline in median breast-feeding from 20 to 15 months potentially encourages a larger fertility increase than a decline from 25 to 20 months or a drop from 8 to 6 months.

In the absence or inefficient use of contraception, breast-feeding emerges as the most important variable governing the birth interval length. It has been estimated that in countries of the developing world where efficient contraceptive use is still low, prolonged breast-feeding is responsible for more years of protection from pregnancy among couples than family planning.[16] Given the role of lactation in the length of birth intervals, a general decline in the prevalence and duration of breast-feeding would be expected to result in more births during a given time period, other things being equal. While such a hypothosis is difficult to test in real populations, several studies suggest that this has occurred.[17,18] Among an isolated Canadian Indian tribe, breast-feeding declined and birth rates experienced a real increase after baby bottles and canned milk became available at the local trading post.[19]

In many societies, the same communications and marketing networks that bring the baby bottle to the attention of women are also bringing modern contraceptives and smaller family ideals. If a decline in breast-feeding is counterbalanced by the use of contraceptives, no increase in birth rates will occur. Births may actually decrease because modern contraceptives are a much more efficient family planning method than lactation. In practice, the changes in society caused by economic development are seldom smooth or orderly. Women in traditional societies may abandon breast-feeding long before contraceptive use becomes commonplace—a change that could result in at least a temporary rise in fertility.

Data Sources

The World Fertility Survey provides some of the best data on breast-feeding practices on the national level. While participating countries tailored their surveys to reflect the issues they considered most important, they also endeavored to follow a core questionnaire developed by the WFS organization. Complying with this model, nineteen of the countries with published findings asked respondents whether they had fed either their most recently born child or their next-to-last child "at the breast," and for how many months. A few countries added questions about the age at which infants began receiving food supplements to human

milk and the number of months before the mother resumed menstruation, in an attempt to measure what effect breast-feeding had in prolonging the post-partum sterile period.

The WFS surveys in these nineteen countries, conducted between 1974 and 1978, span a large geographical area, encompassing a variety of socioeconomic, linguistic and religious characteristics. Ten countries are in Asia, one in sub-Saharan Africa, and eight in Latin America and the Caribbean.

Socioeconomic Development

Each country is at a different stage of the development process that stretches from traditional, largely rural societies, to modern, urban societies. Theoretically, as a country advances, birth and death rates fall, life expectancy increases, cities grow through rural-to-urban migration, and per capita gross national product rises with a shift from subsistence agriculture to a modern cash economy. The changes tend to be incremental, but they do not necessarily occur at the same or even at a constant rate. Death rates may fall long before birth rates, for example, or the rate of urbanization may far outdistance that of industrialization.

Appendix Table A-1 compares these countries on a number of demographic, economic, and health-related measures that give some indication of their level of development. Large differences are apparent. The infant mortality rate ranges from 20 deaths per 1,000 births for Jamaica to 153 per 1,000 for Bangladesh. The percent of the population that lives in urban areas is a mere four percent in mountainous Nepal, compared with 64 percent in Mexico and Colombia. The per capita gross national product is highest for Panama, with U.S. $1,315 per year, and lowest for Bangladesh, with only U.S. $110 per year.

Many developing countries have adopted some aspects of Western development, while rejecting other aspects that may conflict with traditional cultural values. The ethnic Chinese, for example, in many countries are quick to adapt to a modern market economy, yet strive to maintain much of their traditional family structure by continuing to reside in homogenous enclaves. Latin American countries have a strong European tradition, but this is diluted in varying degrees by native culture and a national identity.

The social disruption that accompanies the process of development leads to a questioning of the conventional wisdom concerning infant feeding as well as traditions involving basic family structure and the female role, sometimes precipitating profound changes. A shift away from universal and prolonged breast-feeding would be an example of this process. The nature of the traditional society is an important factor in the speed with which the old ways are relinquished for the new.

Geographic Region

Asia

The Asian countries included in this report, all differing in culture, language and religion, might best be grouped by geographic location: Jordan in Southwest Asia; Bangladesh, Nepal, Pakistan, and Sri Lanka in South Central Asia; Indonesia*, Malaysia†, the Philippines, and Thailand in Southeast Asia; and the Republic of Korea in East Asia. At least 90 percent of the populations of Jordan, Bangladesh, Pakistan, and Indonesia are Moslem. There is also a strong Islamic component in Malaysia, coexisting with Hindus of Indian stock and Buddhists primarily of Chinese origin. The remaining countries contain various combinations of sects derived from these three main religious groups, along with both Protestant and Catholic Christians.

The history of these Asian countries is as diverse as the numerous languages spoken by the inhabitants. Many of these nations, for example Malaysia and Indonesia, are former European colonies. The colonial experience, which often included the institution of large scale agricultural and mineral production, left a unique imprint upon the people and institutions. Other countries, such as Thailand and the Republic of Korea, were never colonized by a European power, although Korea was ruled by the Japanese for the first half of the twentieth century.

*Java and Bali only.
†West Malaysia only.

Figure 1. World Fertility Survey Countries Included in This Report

Africa

The only African country included here is Kenya. Located on the southeastern coast of Africa, Kenya's population consists of two principal ethnic groups, the Kikuyu and the Luo, and many other tribes with different languages and cultural characteristics. Ethnic allegiances and traditions are highly valued among this overwhelmingly rural (90 percent) population. Western-style development is occurring unevenly in the few large cities.

Latin America and the Caribbean

The Latin American and Caribbean countries, with the exception of Jamaica and Guyana, are much more culturally homogenous than the other WFS countries, forming the only real cultural "group" among the countries represented here. Costa Rica, Panama, Mexico, the Dominican Republic, Colombia, and Peru all share a similar linguistic, religious, and colonial heritage, dating from the Spanish conquest. All are former Spanish colonies. Spanish has remained the official language and Roman Catholicism the predominant religion. One of the main differences is the influence of traditional Amerindian culture on contemporary society in each country. In Peru, the language and traditions of ancient Indian civilizations are still very evident among the rural population. In Costa Rica, one of the "whitest" Latin American countries, the Indian influence is practically nil. The larger the Indian component, the more traditional one would expect the society in general, but each country's particular historical experience gives rise to cultural variations. Mexico is dominated by the *mestizo,* a mixture of the Amerindian and immigrant Spanish, who possess elements of both cultures, but whose ethnic identity evolved separately from either of the original groups.

Jamaica's population consists primarily of descendants of African slaves. Under British rule until 1962, Jamaica's common language is English and Christianity is the major religion. However, the African influence is evident in the Jamaican forms of religious and musical expression, and the years of slavery have affected the structure of the family.

Guyana, another former British colony, represents yet another combination of ethnic backgrounds, of which two, Indian and African, are predominant. In 1970, 52 percent of the population classified themselves as of East Indian origin, and 31 percent as African. Only about five percent of the population are classified as Amerindian and this segment tends to be isolated from the mainstream of the Guyana society.

Focus of Analysis

The variety of data available enables comparisons of breast-feeding behavior both by geographic region and by several common indices of economic development, such as per capita gross national product. An analysis of the importance of demographic characteristics and women's background (age and parity*, urban/rural residence, education, and use of modern contraceptives) will also be included for some countries.

Measures

The measures of breast-feeding to be used in this analysis, derived from published reports, allow an assessment of patterns of the initiation and duration of breast-feeding in these countries.

Two measures of the initiation of breast-feeding by new mothers are used: (1) the percentage of ever-married women who breast-fed their next-to-last child for any length of time (including only women who have had at least two children or who have had only one previous birth and were currently pregnant); and (2) the percentage of all children born in the three years prior to the survey who were breast-fed for any length of time. The second measure is based on children rather than women and may include more than one birth for each woman. Because it includes the experience for all children rather than just the last or next-to-last, it is a more comparable estimate than the women-based rate. Derived from current breast-feeding experience, it is also freer from the problems of memory bias.

The duration of breast-feeding is measured as the mean or the median number of months

*Defined as the number of children ever born to a woman.

of breast-feeding for a given number of women. Both the comparisons of breast-feeding initiation and duration among countries are based on the child-based data, on births within three years prior to the survey. Within-country analyses are based on the women-based data involving breast-feeding of the next-to-last child. Each of these measures is studied among the nineteen countries, with some attention to regional variations and differences in the level of economic development. Where the data are available, comparisons by socio-demographic characteristics of the mother will be examined within the same country.

Theoretically, the initiation of breast-feeding among mothers of live births could be nearly 100 percent. Because most women are physically able to nurse their babies, the decision not to breast-feed at all reveals something about the availability and knowledge of breast milk substitutes, and may also signify a rejection of traditional infant feeding practices. In developed countries where substitutes are readily available, breast-feeding has fluctuated in popularity among both the public and health professionals.[20]

The duration of breast-feeding is particularly related to life-style, especially women's freedom of movement and their participation in away-from-home activities. The frequent physical presence of the mother necessary for breast-feeding curtails her activities. Thus, duration of nursing more than its initiation would appear to be related to the level of modernization and urbanization.

Both aspects of breast-feeding behavior are affected by cultural attitudes toward body contact, exposure of the breast, and symbolism of the breast. These culture-based factors assume a special importance in determining breast-feeding behavior when baby bottles and commercial milk become available, because it then is clearly within the realm of conscious choice.

Limitations of the Data

While the survey data are valuable, serious problems with the reliability of the results exist. First, there are important differences between the effects of full and partial breast-feeding on the suppression of ovulation. No distinction was made in most of the questionnaires. Women could report that they were breast-feeding as long as they occasionally nursed their babies, however infrequently.

Second, the respondents' recall may not have been accurate, especially regarding duration of breast-feeding. Women were asked to remember how many months they had continued to breast-feed children born from a month to twenty years prior to the interview. This is complicated by the fact that a child's weaning might stretch over several months, during which the mother's milk is gradually replaced by other foods.

One consequence of this problem is that the women tended to round off their responses on half-yearly intervals. Thus, most women responded that they breast-fed their child for 6, 12, 18, or 24 months even though this probably did not reflect their actual behavior. Studies which follow women from the birth of a child until it is weaned show that women do not tend to wean children at a specific age.[21] This would mean that only a portion of the women who reported that they breast-fed their next-to-last child for 24 months actually did so. The remainder breast-fed for either fewer or more months.

A third source of bias arises from the fact that normal breast-feeding behavior can be cut short either by the death of the child, or, for women who were nursing at the time of the interview, by the survey itself. In these circumstances, the survey recorded only part of the total duration of breast-feeding that would have normally occurred. Including data on incomplete breast-feeding experiences will understate the average duration. For some of the measures to be used in this analysis, the responses of women whose child died at less than one year of age were excluded. Also, for some measures, breast-feeding of the next-to-last child is used in order to avoid counting a child who still may have been at the breast at the time of the interview.

Analysis

Patterns of breast-feeding are related to (1) cultural norms—those concerning proper infant foods, public exposure of the breast, etc. and (2) the level of economic development, which facilitates dissemination of information about and accessibility of convenient breast milk substitutes and which usually expands

employment opportunities for women. These two factors are not independent since there must be some elements within a culture that either encourage or repulse the forces of modernization. Variations in breast-feeding patterns between countries result from the different effects of these factors, and both must be taken into account when examining inter-country variations. Because the countries included in this report have such different levels of modernization, inter-country comparisons can perhaps be best understood by first examining the relationship of the development indices with overall breast-feeding patterns.

Level of Socioeconomic Development

Appropriate measures of economic development are difficult to isolate. The indices included in the Appendix Table A-1 are crude, but they can be useful tools for demonstrating the relationship between these aspects of development and the breast-feeding patterns in these countries.

GNP per capita

The relationship between percent of children breast-fed and mean duration of breast-feeding and per capita gross national product are shown in Figure 2. It is quite clear that countries with a higher GNP per capita have lower percentages breast-fed and shorter durations of breast-feeding than those with lower GNP per capita. The relationship is stronger for the duration, possibly indicating that the level of development is more important to the length of time that breast-feeding is continued than to whether or not children are breast-fed at all.

There are a few exceptions to the overall pattern. In Figure 2 the Republic of Korea stands out because of the long duration of lactation in relation to its GNP per capita. The incidence graph shows more variation, but three countries—South Korea, Jamaica, and Jordan—have a higher percent breast-fed than might be expected with their GNP per capita. It is impossible to conclusively explain the deviation from the normal pattern, why these countries are maintaining this feature of traditional society while experiencing socioeconomic growth. This may be a reflection of the strength of the older customs or of the newness of the economic development. In all these countries significant increases in national income have been fairly recent, since the 1960s, suggesting that modernization may have so far had very little impact on the general public. Jamaica, however, is one case in which there has been a long history of contact with the "Western" social model through interaction with the U.S. and political administration by the United Kingdom, yet its culture has remained distinct. Breast-feeding in Jamaica continues to be almost universal, high in proportion to its GNP per capita, yet length of lactation is more in line with that of other countries with the same average income. The more western life-style may discourage nursing for a prolonged period, but not the decision whether to breast-feed at all.

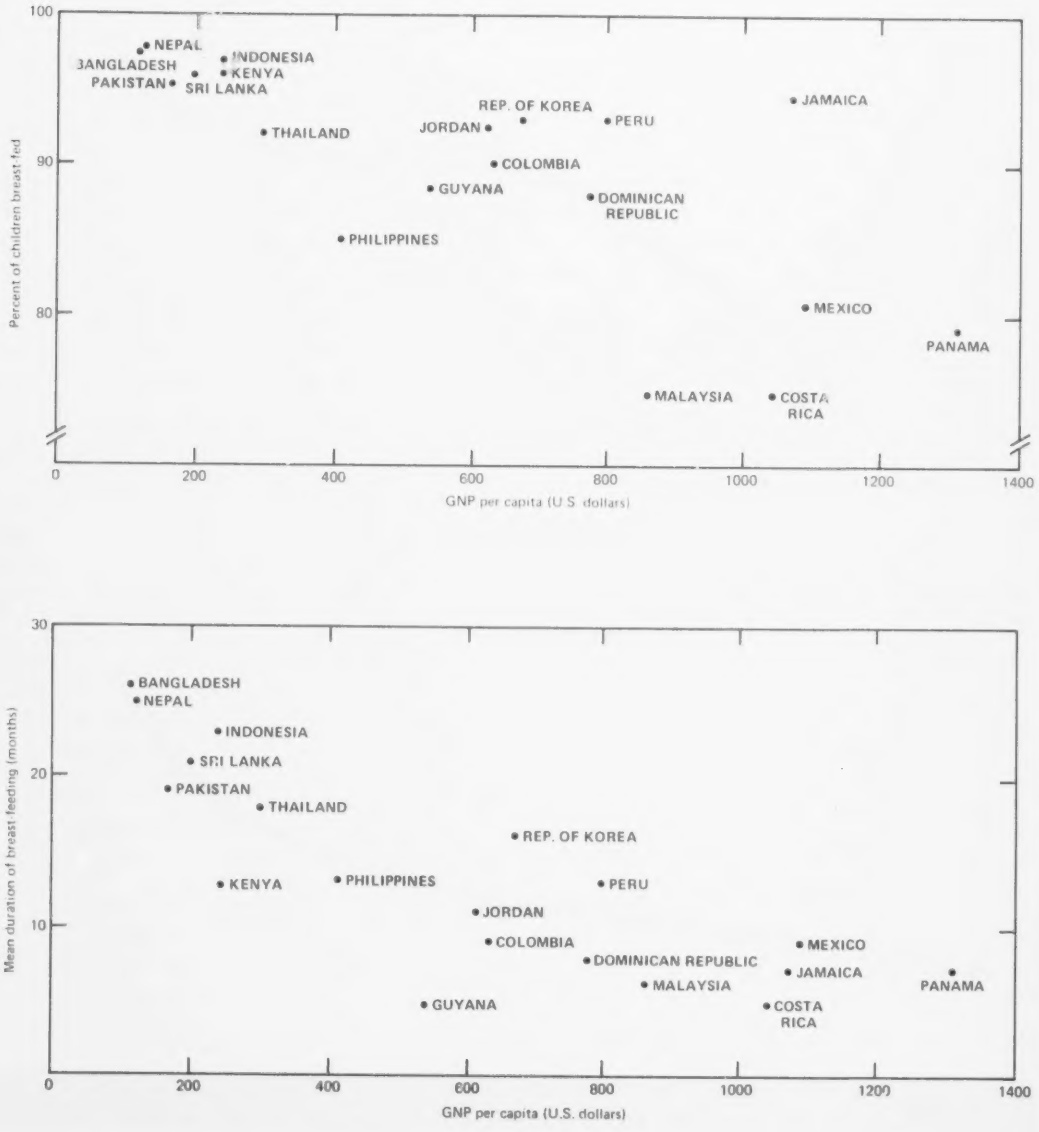
Another exceptional case is the Philippines, with a lower percent of children breast-fed than countries with a similar per capita income. Again, the explanation may rest on both cultural and economic history. This is one of the more "Westernized" Asian nations, owing to its nearly 400 years of Spanish and American rule. The educational system was instituted during the American administration and English is spoken by about 40 percent of the population. The economy experienced its greatest advancement just after World War II, preceding by more than a decade the major period of economic growth witnessed by most of the other developing countries in the 1960s. But the rate of growth slackened considerably in the last decade. It was perhaps the longer exposure to Western influence and a lower cultural resistence to changing infant feeding practices that accounts for the relatively low initiation of breast-feeding by Philippine mothers. The mean duration of breast-feeding in the Philippines, however, conforms to the general pattern in relation to per capita GNP.

Other Socioeconomic Indicators

The GNP per capita is an imperfect measure of the general wealth or level of development; it contains no information about the distribution of income within a population.

Other indices of economic development more sensitive to the general standard of living and to the degree to which the "average person" participates in the process of modernization include: infant mortality rate, literacy rate, percent of the population residing in urban areas,

Figure 2. Initiation and Duration of Breast-feeding by GNP per Capita



Sources: Table 1; Appendix Table A-1; B. Ferry, 1981, Table 1; Kenya First Country Report, Tables 8.6 and 8.9.

and percent of the labor force engaged in agriculture. For each of these measures (graphs not shown) greater percentages of children breast-fed and longer mean durations of breast-feeding were associated with indicators showing the least advanced or least modern socioeconomic conditions. In each case the relationship was stronger for duration than for percent breast-fed. Although the number of countries is small, these results strengthen the hypothesis that prolonged breast-feeding is most commonly a characteristic of traditional societies.

Interestingly, the percent of women in the labor force, unlike the other development indicators, bore no relationship to these breast-feeding measures. While the employment of women outside the home has often been cited as a major reason for declines in breast-feeding, this very general index failed to show that greater female labor force participation is associated with lower breast-feeding measures on this aggregate level (graphs not shown).

Table 1. Percentage of Children Born in the Three Years Preceding the Survey Who Were Breast-fed: WFS Countries

COUNTRY	PERCENT BREAST-FED
Nepal	98
Bangladesh	98
Indonesia	97
Kenya	96
Sri Lanka	96
Pakistan	95
Jamaica	94
Korea, Rep. of	93
Peru	93
Jordan	93
Thailand	92
Colombia	90
Guyana	88
Dominican Republic	88
Philippines	85
Mexico	80
Panama	79
Costa Rica	75
Malaysia	74

Sources: Kenya: First Country Report, Table 8-9.
All other countries: B. Ferry, 1981. Table 1.

Contraceptive Use

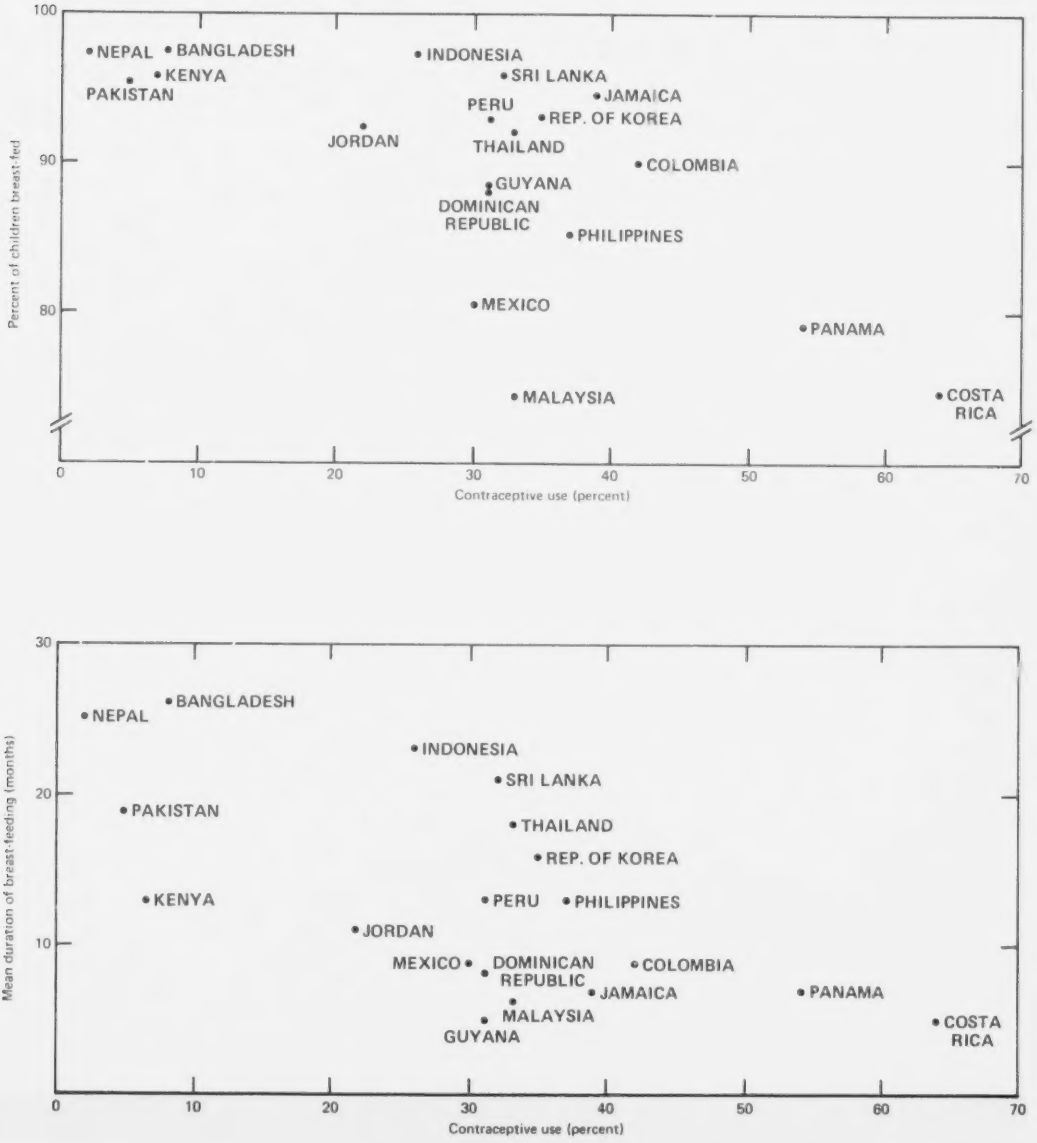
The use of contraceptives has been employed as an index of modernization and of the relative autonomy of the woman.[22] The level of contraceptive use is particularly important in relation to breast-feeding because of the effect of lactation on the length of birth intervals. Theoretically, as a society modernizes, the time spent breast-feeding will decline, creating a potential increase in the number of births within a given period. At the same time the availability, knowledge, and use of contraceptives increase. Contraceptives fill the gap in the protection from conception formerly provided by prolonged lactation. Because contraceptives are far more effective in spacing births and especially in limiting the total number of children born, birth rates fall instead of increase. The vital element in this scheme is the increased use of contraceptives; without this, a real increase in fertility can occur.

The association between the national contraceptive prevalence rate* and measures of breast-feeding are shown in Figure 3. While the association is not as obvious as it was with the per capita GNP, these variables appear to be related. As would be expected, breast-feeding is more common in countries in which contraceptive use is low. Unlike the other indices, however, contraceptive use is related more to the initiation of breast-feeding than to its duration. This may arise because contraceptive use is a measure of women's development and autonomy as much as of society's modernization. It demonstrates the woman's recognition of her ability to control natural processes and demonstrates her freedom to make a choice and to carry it out. The decision not to breast-feed at all also implies that the woman is conscious of alternatives to the traditional course.

Again, several exceptions to the general pattern should be noted. Both the Republic of Korea and Thailand have much higher contraceptive use rates in relation to the percent breast-fed and duration of breast-feeding than the other countries. Despite significant increases in the use of modern contraceptives, the traditional practice of prolonged breast-feeding continues to be almost universal. Vigorous and

*The percentage of currently married women aged 15-49 who use some method of contraception.

Figure 3. Initiation and Duration of Breast-feeding by Contraceptive Use



Sources: Table 1; Appendix Table A-1; B. Ferry, 1981, Table 1; Kenya First Country Report, Tables 8.6 and 8.9.

extremely successful family planning programs in both Korea and Thailand have facilitated contraceptive use among a wide cross-section of the public who are perhaps not yet exposed to the specific influences of the modern urban life-style.

Percent of Children Breast-fed: Country Comparisons

The WFS results show that breast-feeding is universal in most of the nineteen reporting countries. The percentage of children born during the three years prior to the survey who were breast-fed range from nearly 98 percent for Nepal to 74 percent for Malaysia (see Table 1). In almost two-thirds of the countries 90 percent or more of the babies are breast-fed for some length of time. In only three countries, Panama, Costa Rica and Malaysia, do these percentages fall below 80 percent. These values are in marked contrast to the U.S., where only 39 percent of women breast-feed their first child, and only 29 percent of those Americans whose babies were born between 1971 and 1974, did so.[23]

Regional Patterns

Asia

Because universal breast-feeding is associated with traditional female roles, one would expect, and finds, a high percent of children breast-fed in the Moslem countries of Jordan, Pakistan, Bangladesh, and Indonesia. Except for Malaysia, in which about one-half the population is Moslem, in each of the Islamic countries the percent of children breast-fed is greater than 92 percent.

Similar, but not strictly comparable measures are available for the major ethnic groups within Malaysia. These measures—the percentage of women breast-feeding their next-to-last child*—show that about 92 percent of the Moslem Malays nurse compared to only 59 percent of the Chinese and 75 percent of the Indians. The low overall percentage for Malaysia masks the three very different rates of these major population groups. Each tends to reflect traditional family systems, yet only among the Malays is breast-feeding universal. The Malays overwhelmingly live in rural areas, have less education, and generally have lower incomes than the other major ethnic groups. The Chinese, with the lowest incidence of breast-feeding, are at the other extreme, being the more urban and having higher educational and income levels. The Indians occupy the middle position in the initiation of breast-feeding and in socioeconomic status.

Among other Asian countries, percentages are more varied but quite high, ranging from 98 for Nepal to 85 for the Philippines. Clearly, nursing is still the most common method of infant feeding in these Asian countries.

Africa

In Kenya, the only African country represented here, 96 percent of the babies are breast-fed. Like many sub-Saharan African countries, Kenya is dominated by a very rural population. The type of dress, life-style, and strong cultural tradition serve to reinforce nursing as a societal norm.

Latin America and the Caribbean

Latin American and Caribbean countries as a whole have lower percentages of children breast-fed than other countries and the range of values is somewhat smaller. In six of the eight countries reporting from this region between 75 and 90 percent of the children are breast-fed. Peru, with its strong Amerindian influence, has one of the highest rates for the region: 93 percent of the children born in the three years prior to the survey were breast-fed. Costa Rica, whose women are generally better educated (84 percent of the women were literate in 1976 compared to about 67 percent in Peru) and are twice as likely to use contraception, has the lowest percent breast-fed for this region, 75 percent. The GNP per capita is 20 percent higher in Costa Rica, another indicator of the generally more advanced level of development.

*The percentages are based on women with at least two births (including current pregnancy) whose last closed birth interval exceeds 35 months and whose child survived at least 24 months. (Table 4.1.4E, Malaysia First Country Report).

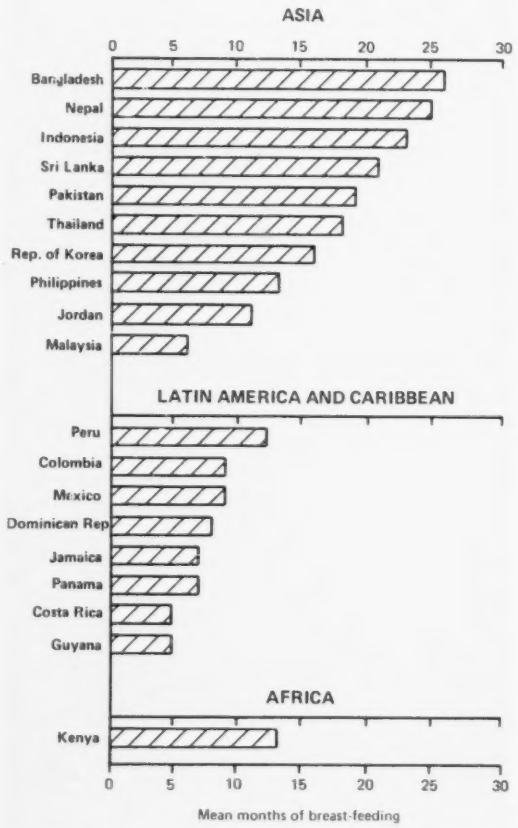
Although it boasts a relatively high living standard, Costa Rica is not predominantly urban; only 41 percent of the population lived in towns or cities in 1976, the year of the survey. Fifty-five percent of Peru's population was urban, and almost 40 percent of that number lived in Lima, the capital city. The differences in the quality of urban life, not reflected in overall national statistics, must also be considered. Lima is famous for its urban slums, whose residents participate only marginally in the process of modernization. They may have less access to breast milk substitutes, for financial and other reasons, than rural women in Costa Rica, and may be less aware of the alternatives to traditional feeding.

A healthy 94 percent of the children in Jamaica are breast-fed. This is much greater than in other countries of the region, for example Costa Rica, which have similar birth and death rates, life expectancy, literacy, and per capita GNP, suggesting a comparable level of socio-economic development. This deviation from the regional pattern may well be due to the difference in cultural attitudes toward the breast and breast exposure among the African slave and the Latin traditions so important in this region. Several hospital studies have cited a decline in breast-feeding in Jamaica and elsewhere in the English-speaking Caribbean,[24] but breast-feeding is still more prevalent here than for any of the other WFS countries in this region.

Duration of Breast-feeding: Country Comparisons

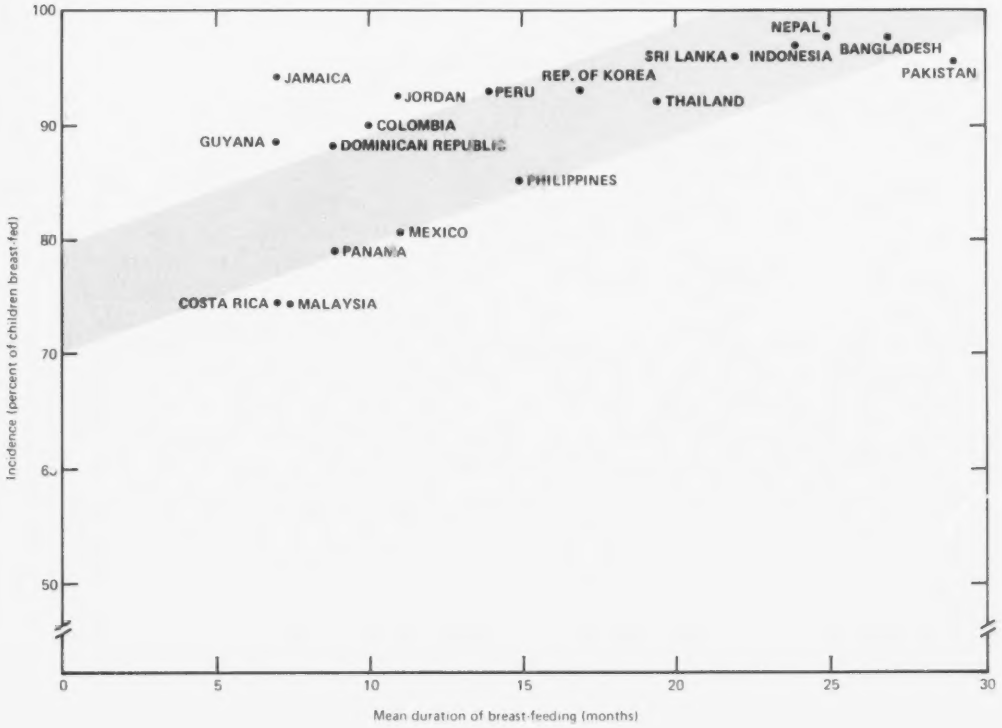
The mean duration of breast-feeding varies widely among the WFS countries, ranging from a high of 26 months for Bangladesh to a low of five months for Costa Rica and Guyana. Figure 4 shows the distribution of countries by mean number of months. More clearly than was the case for initiation, the Latin American and Caribbean countries demonstrate a distinct regional pattern of breast-feeding duration—between five and nine months for all but Peru. The variation both among and within the Asian countries is large, but lactation generally lasts longer than in Western Hemisphere countries. With the exception of Malaysia, an extreme case, the mean duration in Asian countries is fairly evenly distributed between 12 and 26 months.

Figure 4. Mean Duration of Breast-feeding for Children Born within the Three Years Preceding the Survey: WFS Countries



Sources: Kenya: Kenya First Country Report, Table 8.6. All other countries: B. Ferry, 1981, Table 1.

Figure 5. Initiation of Breast-feeding by Average Months of Breast-feeding



Note: Mean duration of breast-feeding was calculated based on children who were breast-fed only. This was not available for Kenya.

Source: B. Ferry, 1981, Table 1.

Table 2. Median Duration of Breast-feeding by Level of Contraceptive Use: WFS Countries

MEDIAN MONTHS OF BREAST-FEEDING	CONTRACEPTIVE USE RATE* Low < 30%	Moderate 30-49%	High 50% +
Less than 10 months		Colombia Dominican Rep. Guyana Jamaica Malaysia	Costa Rica Panama
10 to 20 months	Kenya Jordan Pakistan	Korea, Rep. Mexico Peru Philippines Sri Lanka Thailand	
21 or more months	Bangladesh Indonesia Nepal		

*Percent of women aged 15-49 in union using any method of contraception. Figures refer to the year of the WFS Survey.
Source: Appendix Tables A-1 and A-5.

Generally, those countries with a high percent of children breast-fed also have a lengthy mean duration, but there are some exceptions. Women in Jamaica and Guyana breast-feed for a relative short time in relation to the overall prevalence of lactation.

A long mean duration does not necessarily follow from a high percent breast-fed. In traditional societies both measures would be expected to be high, but in modern societies more commonly both will be low, or the percent breast-fed high and duration low. Breast-feeding lasting twelve months or more would be unlikely in developed countries, but a high percent breast-fed is not incompatible with a modern life-style. In Finland, for example, the percentage of women breast-feeding their babies at one month of age is high, about 79 percent, but the duration is quite short compared to these developing countries. Only about 30 percent of the Finnish mothers are still breast-feeding at three months and seven percent at six months.[25] In the United States, both the initiation and length of breast-feeding are quite low. In the WFS countries included in this report, a mixture of traditional and transitional societies, a high percentage of children breast-fed is still strongly associated with the lengthy mean duration of breast-feeding (see Figure 5).

The impact of breast-feeding patterns on the spacing of births in a population depends on this mean or median duration of breast-feeding. The frequency and intensity of nursing are also important factors, but there is little information on this aspect in the survey data. In Kenya, where a distinction was made in the survey between full and partial breast-feeding, full breast-feeding reportedly lasts only about three months on the average.[26]

Since lactation provides the greatest potential protection from pregnancy during about the tenth to twentieth months, it is possible to identify the countries most at risk of experiencing a fertility increase in the event of a significant decline in the duration of breast-feeding, assuming no great increase in contraceptive use. Countries where the practice of family planning is already moderate to high are in less danger of experiencing a real upturn in birth rates than those countries characterized by strong resistence to the widespread distribution and use of contraceptives. Table 2 characterizes

Table 3. Percent of Women Who Breast-fed Their Penultimate Child by Age of Mother: WFS Countries†*

COUNTRY	CURRENT AGE		
	< 25	25-34	35+
ASIA			
Bangladesh	99	99	99
Indonesia	98	98	98
Jordan	93	93	94
Korea, Rep. of	94	95	97
Malaysia	78	78	80
Nepal	99	100	100
Pakistan	97	99	97
Philippines	92	87	88
Sri Lanka	97	96	97
Thailand	92	93	94
LATIN AMERICA AND THE CARIBBEAN			
Colombia	91	91	94
Costa Rica	75	82	84
Dominican Rep.	92	91	90
Guyana	87	90	91
Jamaica	95	95	96
Mexico	83	85	86
Panama	82	83	87
Peru	94	91	93

*Confined to ever-married women with at least two births (including current pregnancy) whose penultimate child survived at least 12 months.
†Not available for Kenya.

Source: B. Ferry, 1981: Tables 5A-5D. (See Appendix Table A-2.)

these WFS countries according to their median duration of breast-feeding and contraceptive use rates. The nine countries with a median duration of 10 to 20 months are those in which declines in breast-feeding could lead to temporarily higher birth rates without increases in contraceptive use. None have high contraceptive use rates, although more recent estimates for Korea and Thailand suggest contraceptive prevalence is now over 50 percent.[27]

The Moslem countries of Jordan, Indonesia, Bangladesh, and Pakistan, along with the extremely traditional populations of Nepal and Kenya, are probably at greatest risk of experiencing fertility increases due to declining lactation. Contraceptive use is extremely low in these countries, and, except for Indonesia, there have been only modest gains in the acceptibility or use of family planning.

Of the eight Latin American and Caribbean countries, only Mexico and Peru are at risk of experiencing fertility increases in the event that the median breast-feeding duration is shortened; and the median duration in Mexico, at 10 months, is at the lowest limit of the group. In the other countries in this region, further declines in the length of time children are nursed may have more of an impact on their health and their parents' time and resources than on birth interval length or birth rates.

For all the countries, however, the responses of individuals within the sample population varied substantially from the overall averages. This suggests that declines in breast-feeding could have effects on the fertility of women within certain population sub-groups, even in countries with low overall median lengths of breast-feeding. Some Costa Rican women, for example, normally breast-feed their children for 12 to 18 months—well above the median of six months. They would be at risk of the loss of months of protection from pregnancy if they begin to decrease the length of time they nurse their children. As discussed below the prevalence and duration of breast-feeding does vary within different demographic and socio-economic groups for these countries.

Age and Parity

Initiation

If there is a trend away from the breast-feeding of newborn babies that is prompted by the transition from a traditional to a modern society, younger women might be expected to be the first to follow it. Their behavior and attitudes are not as rigidly fixed as older women because they have not had the years of exposure to traditional customs that older women have had, nor the experience of raising as many children. Also, younger women are more likely to live in urban areas and to have had the opportunity to obtain some formal education, particularly if the availability of education is a fairly recent development.

Parity, the number of children a woman has borne, is a measure closely related to age. Older women have completed more years at risk of becoming pregnant, and for any given set of

Table 4. *Percent of Women* Who Breast-fed Their Penultimate Child By Birth Order of Child: WFS Countries†*

COUNTRY	BIRTH ORDER					
	1	2	3	4	5+	All
ASIA						
Bangladesh	99	99	99	99	99	99
Indonesia	98	98	99	98	98	98
Jordan	93	92	93	97	94	94
Korea, Rep. of	92	96	97	97	97	96
Malaysia	71	78	78	82	83	79
Nepal	100	100	100	100	99	100
Pakistan	98	99	98	99	99	99
Philippines	84	87	87	88	90	88
Sri Lanka	95	97	96	98	98	97
Thailand	89	95	93	95	94	93
LATIN AMERICA AND THE CARIBBEAN						
Colombia	87	92	93	95	95	92
Costa Rica	75	78	82	80	85	80
Dominican Republic	86	90	92	93	93	91
Guyana	83	92	91	93	92	90
Jamaica	94	93	94	98	98	96
Mexico	77	85	88	88	87	85
Panama	76	82	84	89	90	85
Peru	89	91	92	93	94	92

*Confined to ever-married women with at least two births (including any current pregnancy) whose penultimate birth survived at least 12 months.

†Not available for Kenya.

Source: Appendix Table A-3.

age-specific birth rates will have more children than younger women. If there is a declining trend in the percent of women breast-feeding, younger women may be less likely to breast-feed than older women and they will also have lower parity. In a developing society, the more "Westernized" women within one age group would also be expected to have fewer children; they would be more likely to have adopted the small family ideal and to have access to efficient contraceptives. These women might be somewhat less likely to breast-feed their newborn babies because they would recognize that there are alternatives.

Table 3 shows the breast-feeding behavior of women by three broad age groups, and Table 4 depicts the percent breast-feeding by parity, as compiled by B. Ferry.[28] The pattern by parity is similar within each of the three age groups, but is most pronounced for the middle group, women aged 25-34 (see Appendix Table A-2).

Asian Countries

There is no discernible pattern in the percent breast-feeding by age group in these Asian countries. Only Korea, the Philippines, and Thailand show obvious differences by age, and the patterns are not the same. In Korea and Thailand, the percent of women breast-feeding their next-to-last child drops very gradually from the older to younger age groups. This may mean that there is a shift away from breast-feeding among younger women.

Previous research in Malaysia indicates that breast-feeding was more common in the past.[29] Surprisingly, about 20 percent of the Malaysian mothers in all age groups do not breast-feed. Apparently the low prevalence of nursing in Malaysia is not limited to the younger ages, as would be expected if there was a recent trend toward bottle-feeding. This suggests that the decrease has either already occurred and has stabilized at this level, or, perhaps less likely,

that the changes are occurring simultaneously in all age groups. Also, strong ethnic differences were noted earlier.

The percentage of women who breast-fed their next-to-last child generally increased with higher birth orders and consequently, parity. Table 4 shows the fairly consistent pattern of increase by birth order, but in some countries there is a decline with the fifth or higher birth. There is almost no difference in the percentage breast-feeding by the birth order in countries where the overall level is 95 percent or more: Bangladesh, Nepal, Indonesia, Pakistan, and Sri Lanka. But, in the other countries the first born is least likely to be nursed and the difference is greatest in those countries with the lowest levels of breast-feeding.

Latin America and Caribbean Countries

Within the Latin American and Caribbean countries a clear pattern by age group emerges. Younger mothers are less likely to breast-feed than older mothers. Although the magnitude of the difference varies among countries, only the Dominican Republic deviates from this pattern. This suggests that breast-feeding is less popular with younger women, and probably indicates the likelihood of further declines in the incidence of breast-feeding in the future.

The pattern of breast-feeding by parity is also more consistent and pronounced among the Latin American and Caribbean countries. Latin American women with only two or three children are less likely to have breast-fed their next-to-last child than higher parity women, perhaps because both low parity and a low incidence of nursing indicate that they have adopted a more modern life-style.

Duration

One reason that age and parity are more strongly related to the duration of breast-feeding than to the initiation is that a major impetus for the complete weaning of a child in traditional cultures is a new pregnancy. In some societies women stop breast-feeding immediately after they realize they are pregnant. In others, breast-feeding may continue for several months, although hormonal changes caused by the pregnancy will diminish the quantity and quality of the milk. In either case, the average number of months between two births will place an upper limit on the length of time a woman can continue to breast-feed her last child. This limit is important in cultures where breast-feeding is normally prolonged, and where birth rates are high.

Generally, the older the woman the longer the period of breast-feeding; however, within each age group, the parity exerts a slightly negative influence on nursing duration. As women grow older, the interval between births generally lengthens because of both biological and behavior changes. Older women are less fecund than younger women and tend to have longer periods of post-partum sterility, even with the same amount of breast-feeding.[30] They also tend to experience more anovulatory months and less frequent sexual intercourse than younger women. For a given birth interval, older women spend fewer months at risk of conception assuming that no contraceptives are used. Within each age group, however, higher parity women will have shorter birth intervals, on the average—because they have had more births than women with fewer children within the same number of reproductive years.

Thus, age is positively associated with the length of breast-feeding while, within age groups, parity exerts a slight negative influence. Clearly the independent effects of parity and age on breast-feeding will be greatest in high fertility countries. Both are indirectly associated to breast-feeding through socioeconomic differentials. Lower parity women, for example, tend to be more urban, have higher family incomes and more education than higher parity women. In short, they are more modern, just the group which will be quickest to replace breast-feeding with formulas and baby foods because they possess both the knowledge and means to do so. If there is a trend toward declining breast-feeding, this will most likely be evidenced in the median duration of the younger, low parity women. But the effect will be confounded by the physiological limits imposed by age and parity on the average birth interval length.

The median length of breast-feeding the penultimate child was tabulated by age and parity in Ferry's comparative study. The median for the three broad age groups are graphed for each country in Figures 6 and 7. Most of the countries showed at least a slightly higher median in the higher age groups, but the differences are not great.

Asian Countries

The median length of breast-feeding the next-to-last child is quite varied in the Asian countries. Korea, Sri Lanka, and Malaysia followed a similar pattern, with the median much longer in the oldest age group, but at the same level in the two younger age groups. This could be interpreted as evidence of a move away from breast-feeding among the younger mothers, but it may also be caused by the age pattern of childbearing. In each of these countries, most women have their children early in their marriage, between the ages of 20 and 34; birth intervals after age 35 would tend to be quite long, encouraging longer durations of breast-feeding.

There appears to be no consistent pattern by age among countries where women nurse their children for about the same amount of time. The median for both Bangladesh and Nepal is 24 months, yet only in Nepal is there a difference by age.

In Jordan, the Philippines, and Sri Lanka, the overall median length of breast-feeding is about 12 months, yet the patterns by age are quite different. In Jordan there is a gradual but clear rise in the median duration of breast-feeding with age. The oldest age group nursed their children about three months longer than the youngest group, almost a 25 percent difference. In Sri Lanka, women over 35 breast-fed their penultimate child for five months longer than younger women, about a 29 percent difference. In the Philippines, virtually no difference by age can be seen.

Perhaps because breast-feeding duration is influenced partly by age-specific fertility rates and partly by cultural tastes and norms, both of which may be changing as countries modernize, a graph of the median duration by birth order reveals a confusing array of patterns (see Figure 8a). The lack of consistency among countries of this region may result from the contradictory effect of a movement away from prolonged breast-feeding occurring simultaneously with a trend toward smaller families and/or delayed childbearing, which would otherwise encourage longer breast-feeding duration. If there is no change in breast-feeding or fertility, the pattern should look much like that of Nepal, where the duration of lactation is shorter for women of higher parity, or like those of Bangladesh or Pakistan where virtually no difference by parity is found.

Latin America and Caribbean Countries

Except for Peru and Jamaica, the Latin American and Caribbean countries show a fairly consistent pattern of median breast-feeding duration by age. The median is sharply higher in the 35 and over age group than among younger women. Again, this evidence of a tendency among younger women to breast-feed for fewer months must be considered while keeping in mind the upper limit to the duration imposed by the number and spacing of children.

For women 25-34 years of age, duration of lactation follows a similar pattern by parity in all the Latin American countries (see Figure 8b). Although the magnitude of the differences vary, women with fewer children clearly breast-feed for less time than other women in this age group. Unfortunately, we do not have information on the lengths of the birth interval for these women.

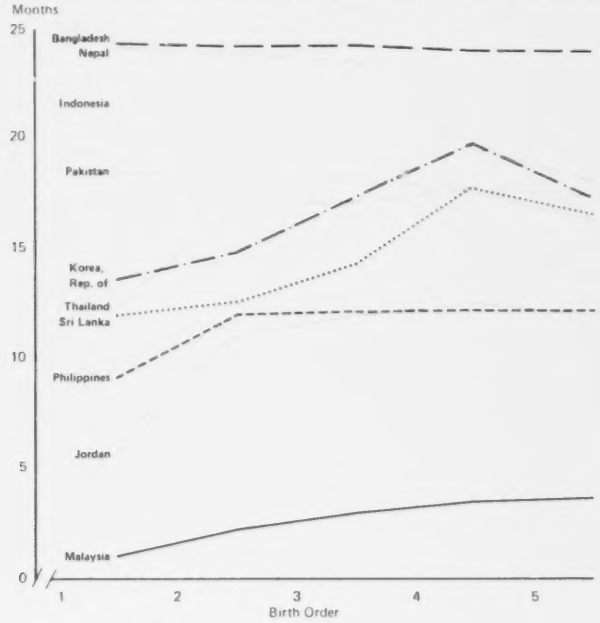
Urban/Rural Residence

Initiation

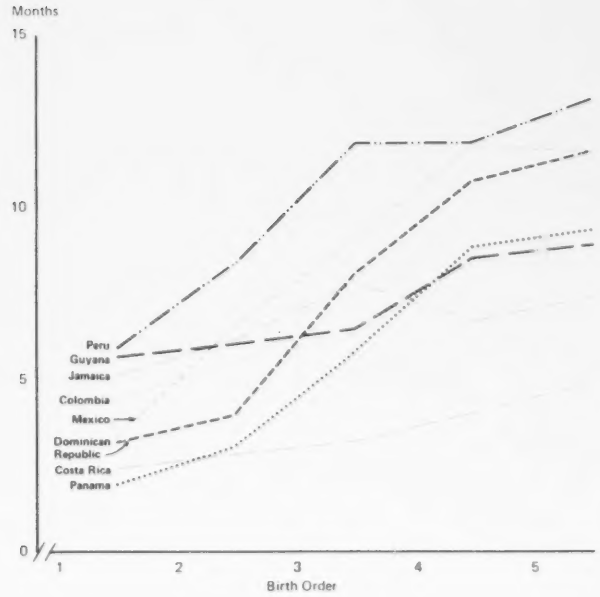
The initiation of breast-feeding for most countries is higher in rural than in urban areas, but the difference is 10 percent or more in only six countries: three in Asia—Malaysia, the Philippines, and Thailand; and three in Latin America—Peru, Mexico, and the Dominican Republic. Relative levels are given in Appendix Table A-4 and graphed in Figures 9 and 10.

In view of the rapid urbanization of many developing countries, it is useful to consider why the differences in urban/rural breast-feeding behavior are so much greater in some countries than in others and, also, whether the urban patterns are a forecast of future changes for the whole country. Cities can exert their influence through sheer numbers as migration causes urban populations to grow in relation to rural areas, and through the dissemination of urban values throughout the countryside. The six countries with the largest differences in urban/rural breast-feeding patterns represent varying stages of urbanization. For example, only about 13 percent of Thailand's population lived in urban areas in 1978 while 64 percent of Mexico's and 55 percent of Peru's populations were urban. Clearly, the importance of urban/rural differentials to future breast-feeding trends must be evaluated within the context of each country's cultural identity and socio-economic situation.

Figure 8. Median Duration of Breast-feeding the Penultimate Child by Child's Birth Order, Women 25 to 34 Years of Age: WFS Countries



a. Asian Countries



b. Latin American and Caribbean Countries

Source: Appendix Table A-4.

Duration

Average duration of breast-feeding, perhaps more quickly affected by modernization than the percent of women breast-feeding, is available according to the residence of the mother for some countries in this report from various research efforts.[31,32,33] The mean duration of breast-feeding the penultimate child by urban/rural residence for ten countries is given in Table 5. In each of these, the duration is shorter in urban areas, but the degree of difference between city and countryside is quite varied, ranging from 17 percent for Bangladesh to 90 percent for Panama.

In Panama the major cities of Panama and Colon have long been centers of international commerce because of the Panama Canal. These are modern cities where imported products are easily available. Like many Latin American countries, Panama's economy expanded during the 1960s and early 1970s, but this progress occurred primarily in the few large cities. Nearly one-half of the population still live in rural areas, engaged in subsistence agriculture. Panama's mountainous terrain, much of it heavily forested, reinforces the isolation of the countryside. It is no surprise that the mean duration of breast-feeding is much shorter in Panama's cities, where women are exposed to modern life-style and alternative infant foods are easily available, than in rural areas where residents continue to rely on traditional feeding practices.

While rural societies tend to maintain traditional roles for women, the modernization and "Westernization" of family roles, ideals, and behavior emerge first in the central urban areas most in contact with the developed world, and spread outward to the more receptive and accessible parts of the country. Transportation and communication networks play an important role in the direction and speed of this modernization process because they determine the amount of exposure that rural and village residents have to urban life-style. Another factor is the timing and size of the rural to urban migration, because this determines what proportion of urban residents are recent migrants from the countryside, perhaps still clinging to their traditional customs and values. These considerations gain a special significance where the contrast in income and living standards between urban and rural areas is substantial, as it is in most developing countries; or where distinct ethnic groups tend to be predominantly urban or rural, such as the Muslim Malays in Malaysia, 90 percent of whom live in rural areas.

Table 5. Average Months of Breast-feeding the Penultimate Child by Urban/Rural Residence: Selected WFS Countries

COUNTRY	PLACE OF RESIDENCE		
	URBAN	RURAL	PERCENT DIFFERENCE R-U/U
Bangladesh	20.9	24.4	16.7
Colombia	7.5	10.6	41.3
Indonesia	13.8	21.4	55.1
Jordan	11.2	15.5	38.4
Kenya	10.2	13.4	31.4
Pakistan	18.7	23.1	23.6
Panama	5.8	11.0	89.7
Peru	9.5	15.6	64.2
Sri Lanka	12.8	16.7	30.5
Thailand	10.4	18.2	75.0

Sources: Kenya: adapted from Kenya First Country Report, Table 8-10;
Pakistan: I. Shah, 1980: Table 4;
Thailand: Knodel and Debavalya, 1980: Table 2;
All other countries: Bongaarts and Jain, 1980: Table 9.

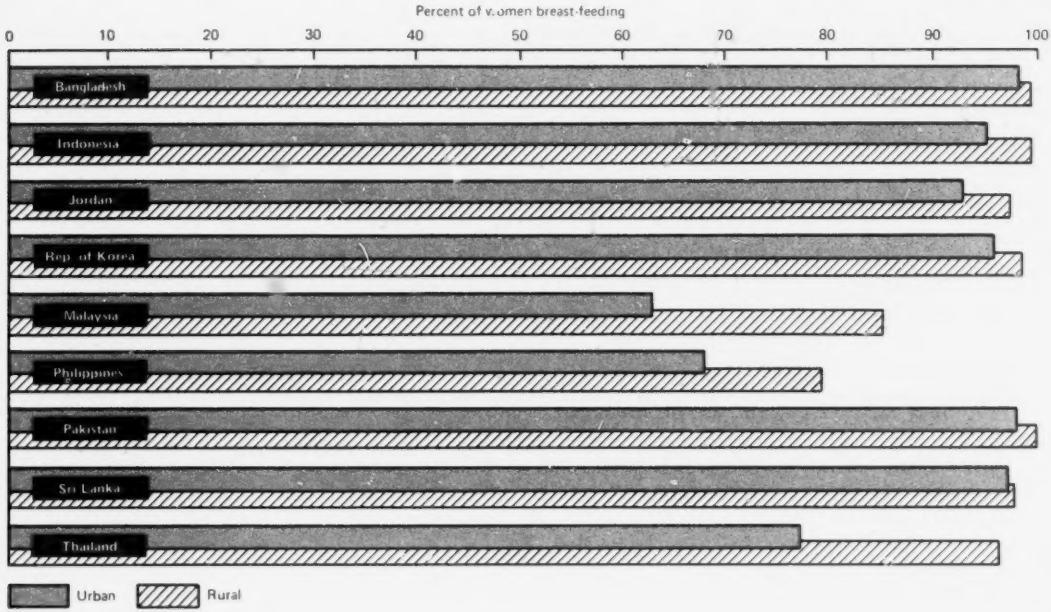
Education

Educated women are more aware of the alternatives which exist for them and for that reason are most likely to have lower measures of breast-feeding. Perhaps more important, they are participating most actively in the modernization process and are most anxious to identify themselves with that life-style.

Initiation

The percent of women breast-feeding by three broad education groups is graphed for each country in Figures 11 and 12. The countries with the greatest urban/rural differences in breast-feeding, also showed the greatest contrasts among women with varying levels of education. These two variables are not indepen-

Figure 9. Percent of Women Breast-feeding the Penultimate Child by Urban/ Rural Residence: WFS Countries, Asia



Note: Not available for Nepal.
Source: Appendix Table A-6.

dent: urban residents tend to have more formal education than rural dwellers.

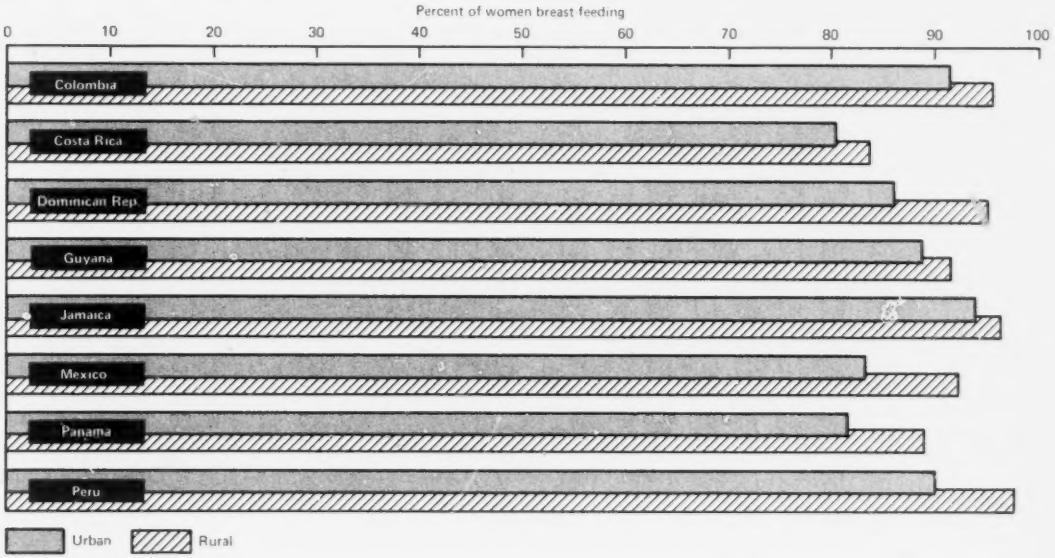
For most of the Asian countries, the percent breast-feeding is slightly lower in higher educational groups, but the differences are substantial only in Malaysia and Thailand. This pattern is also found in Jordan, the Philippines, and Pakistan, although to a lesser extent.

A more consistent relationship between breast-feeding and education emerges in the Latin American and Caribbean countries. For most of these countries, there is less of a difference in the extent of breast-feeding between those with no education and those with a primary education, than between women in these first two educational groups and those with a higher education.

Duration

Comparable statistics on the average duration of breast-feeding by educational group are not available, although some research has included this variable. Using WFS data for Pakistan, Shah[34] found that higher educational levels of the wife and husband are associated with shorter duration of breast-feeding. A similar link was found in studies using WFS data for Sri Lanka, Bangladesh, Indonesia, Jordan, Peru, Guyana, Colombia, and Panama.[35]

Figure 10. Percent of Women Breast-feeding the Penultimate Child by Urban/ Rural Residence: WFS Countries, Latin America and the Caribbean



Source: Appendix Table A-6.

Conclusions

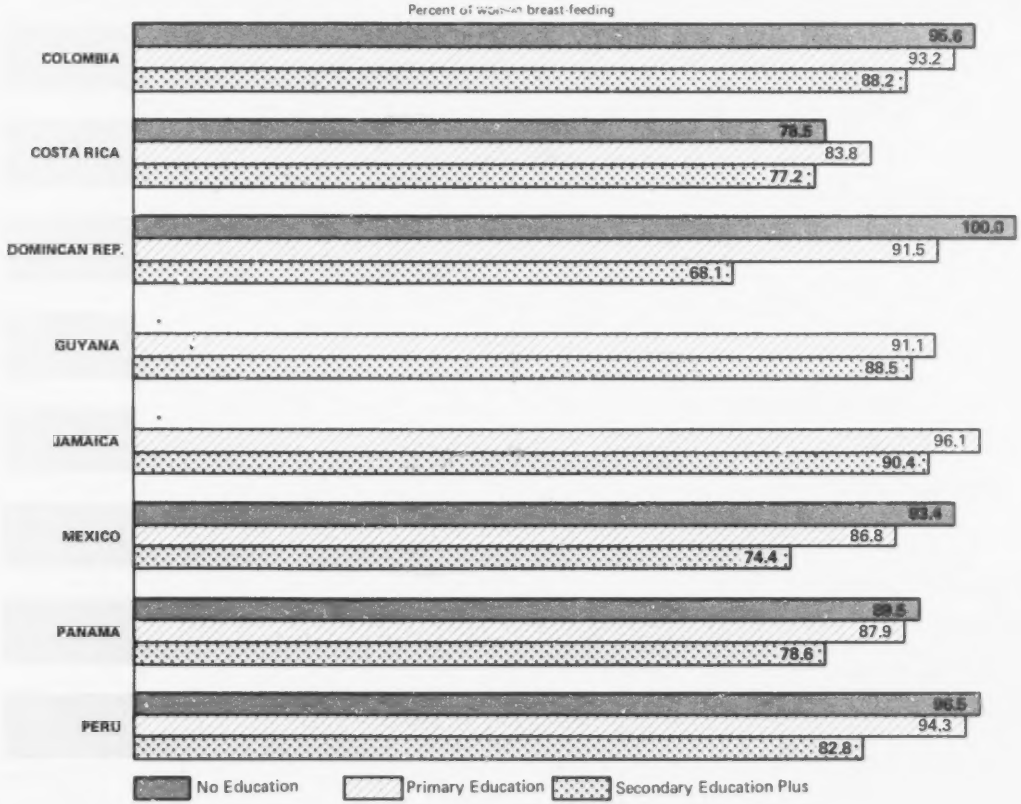
The evidence presented by the World Fertility Survey data reveals considerable diversity in the patterns of breast-feeding in these nineteen developing countries, although breast-feeding is widely practiced in all of them. The percentages of babies breast-fed varies from about 98 percent in Nepal and Bangladesh to 74 percent for Malaysia. The mean length of breast-feeding ranges from 26 months for Bangladesh to only five months for Guyana.

The practice of breast-feeding is governed by the availability of convenient substitutes and cultural traditions regarding infant feeding. The process of economic development affects both these factors because it can mean easier access to breast milk substitutes and it tends to disrupt traditional cultural norms. In these WFS countries both the prevalence and duration of breast-feeding declines as the level of development increases. This inverse relationship is strongest for the mean breast-feeding duration.

While these data do not permit an analysis of lactation trends within individual countries because they capture behavior at only one point in time, they do suggest that both the prevalence and duration will decline as these countries continue to modernize.

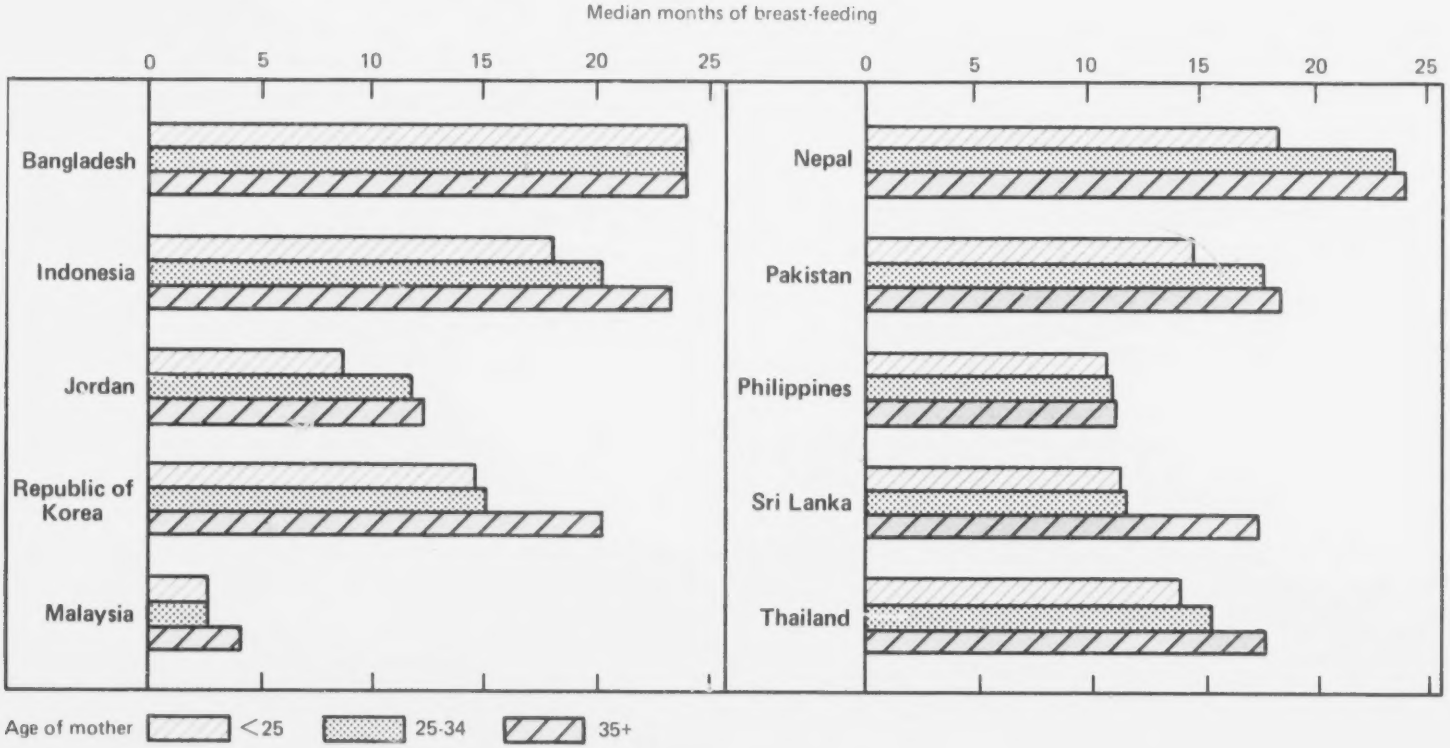
However, the examination of breast-feeding patterns according to the background of the women studied suggest extreme caution in

Figure 12. Percent of Women Breast-feeding the Penultimate Child by Educational Level: WFS Countries, Latin America and the Caribbean



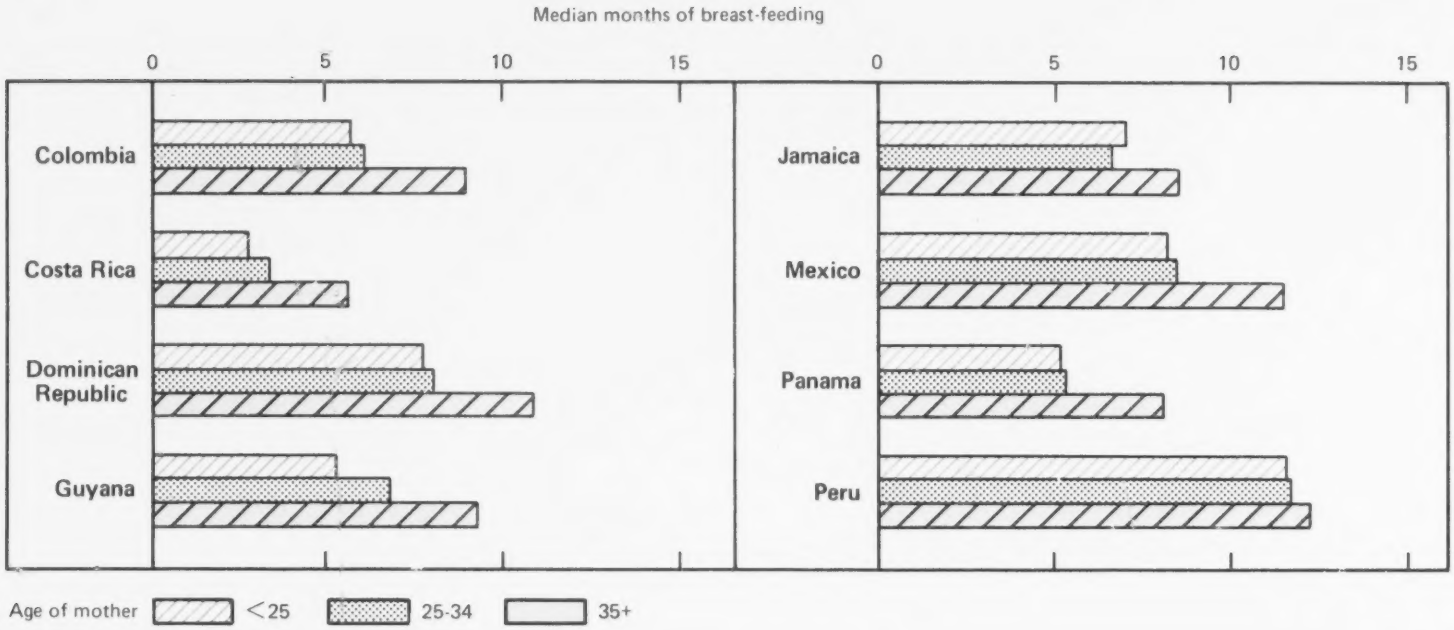
*less than 20 cases in this category.
Source: Appendix Table A-7.

Figure 6. Median Duration of Breast-feeding the Penultimate Child by Age of Mother: WFS Countries, Asia



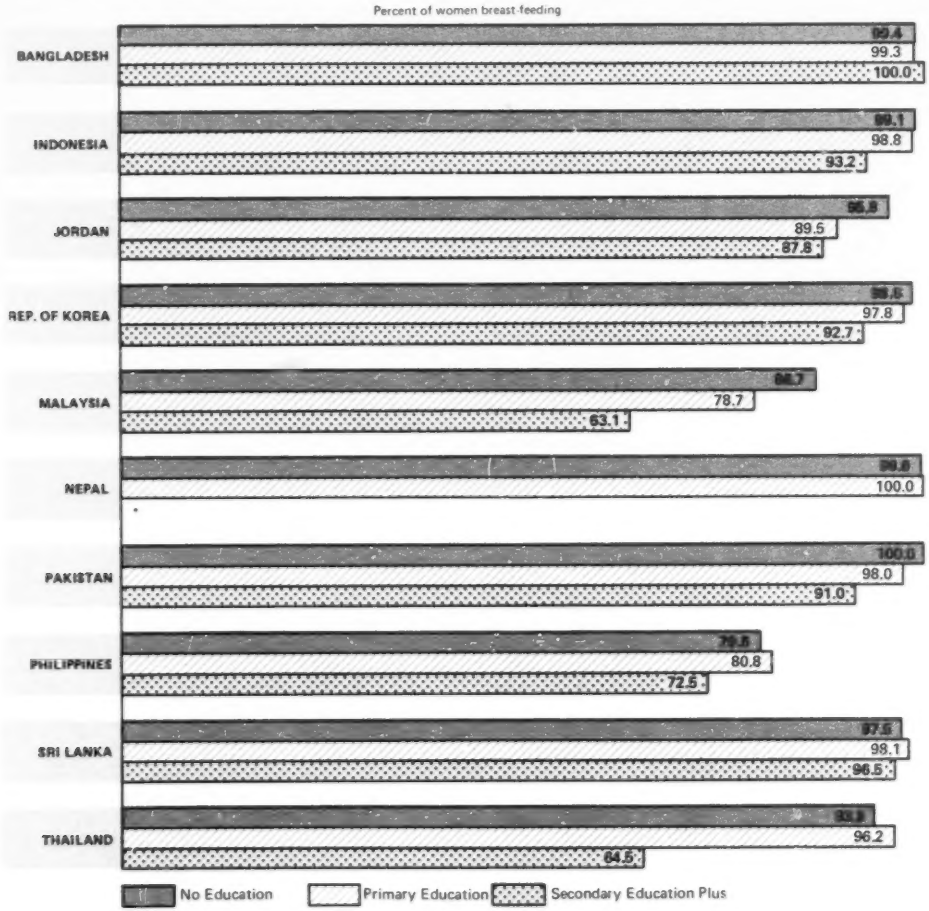
Source: Appendix Table A-4.

Figure 7. Median Duration of Breast-feeding the Penultimate Child by Age of Mother: WFS Countries, Latin America and the Caribbean



Source: Appendix Table A-4.

Figure 11. Percent of Women Breast-feeding the Penultimate Child by Educational Level: WFS Countries, Asia



*less than 20 cases in this category.
Source: Appendix Table A-7.

predicting a wholesale abandonment of the nursing of children. The initiation of breast-feeding is very high within all the subgroups, dropping below 75 percent in only a few cases. The differences among the different age and parity groups are slight in all but a few Asian countries, indicating no widespread rejection of breast-feeding among younger, lower fertility women. In the Latin American and Caribbean countries these differences are more pronounced, but still not overwhelming.

Women in rural areas nurse their children to a greater extent than those in urban areas. but the difference is ten percent or more only for one-third of the countries. The percent of women breast-feeding by broad educational levels shows that more educated women are less likely to breast-feed in all the Latin American countries, but this pattern is not consistent among the Asian countries.

The duration of breast-feeding, on the other hand, is more consistently related to development, according to the limited background variables available. Younger women, and women with fewer children tend to breast-feed for a shorter period of time, particularly in the Latin American countries. Also, for the ten countries for which duration by urban/rural residence is available, the difference in weaning age is substantial; the duration of breast-feeding in urban areas is 17 (for Bangladesh) to 90 percent (for Panama) lower than in rural areas. This supports the hypothesis that prolonged breast-feeding will become less common as countries continue to urbanize and industrialize.

A departure from this trend could be promulgated by the renewed interest in breast-feeding in many developed countries. In these countries, where the availability of breast milk substitutes is virtually universal, the practice of breast-feeding is becoming more popular for nutritional and other reasons. The force of public opinion coming from these developed countries combined with the efforts of consumer groups and health professionals within developing countries to encourage breast-feeding may succeed in slowing the decline in the duration of breast-feeding

In summary, the weaning age of children in these nineteen developing countries will probably decrease over time, and it will decrease more among children born to educated, urban women. This trend will mean a reduction in the months of protection from pregnancy afforded by lactation, which could increase birth rates unless family planning efforts intensify enough to make up for the earlier return to fecundity among new mothers. If contraceptive use increases to high levels of seventy percent or more, lactation will cease to be an important factor in regulating the number and spacing of children, because breast-feeding is of limited value as an actual family planning method. Its primary importance in those cases will be as a health benefit and as a low cost source of food for infants. For much of the developing world, however, patterns of breast-feeding will remain a contributing factor in the levels of fertility for at least the immediate future. □

Appendix

Appendix Table A-3: *Percent of Women Breast-feeding in the Last Closed Interval by Birth Order. Confined to Women with at Least Two Births (including any current pregnancy) Whose Penultimate Birth Survived at Least 12 Months: WFS Countries†*

COUNTRY	ALL AGES BIRTH ORDER					
	1	2	3	4	5+	All
ASIA						
Bangladesh	99.4 (589)	99.3 (593)	98.9 (558)	98.7 (534)	99.1 (1688)	99.1 (3961)
Indonesia	97.9 (1248)	98.1 (1024)	98.6 (870)	98.5 (738)	98.5 (1973)	98.3 (5853)
Jordan	93.3 (327)	92.1 (347)	93.4 (338)	96.9 (305)	93.6 (1602)	93.7 (2919)
Korea, Rep. of	92.2 (864)	96.4 (951)	97.3 (841)	97.2 (649)	97.3 (991)	96.1 (4296)
Malaysia	70.9 (872)	77.5 (886)	77.7 (714)	81.9 (637)	82.8 (1856)	78.9 (4965)
Nepal	99.6 (682)	99.5 (657)	100.0 (605)	99.6 (473)	99.4 (1080)	99.6 (3497)
Pakistan	97.8 (438)	99.0 (472)	97.7 (421)	98.6 (385)	98.9 (1496)	98.6 (3212)
Philippines	83.7 (962)	86.8 (1122)	87.0 (987)	88.3 (851)	89.9 (2711)	87.8 (6632)
Sri Lanka	94.8 (934)	96.8 (908)	96.4 (785)	97.7 (647)	97.8 (1760)	96.8 (5035)
Thailand	88.7 (580)	95.2 (483)	93.3 (419)	95.2 (339)	94.4 (963)	93.2 (2784)
LATIN AMERICA AND THE CARIBBEAN						
Colombia	87.0 (540)	92.3 (466)	92.9 (354)	95.0 (279)	94.9 (917)	92.5 (2556)
Costa Rica	74.7 (593)	77.8 (450)	82.3 (299)	80.4 (240)	85.2 (818)	80.3 (2400)
Dominican Republic	86.0 (300)	90.0 (269)	92.2 (231)	93.1 (188)	92.7 (606)	91.0 (1594)
Guyana	83.4 (477)	91.9 (420)	90.7 (364)	93.0 (284)	91.7 (989)	90.2 (2534)
Jamaica	93.5 (415)	93.4 (302)	94.1 (253)	98.5 (204)	97.8 (584)	95.6 (1758)
Mexico	77.3 (838)	84.8 (765)	87.5 (641)	88.4 (544)	87.1 (1979)	85.2 (4767)
Panama	76.3 (544)	82.5 (510)	84.0 (393)	88.8 (331)	90.2 (794)	84.6 (2572)
Peru	88.7 (777)	90.8 (744)	91.8 (621)	93.2 (518)	94.3 (1692)	92.2 (4353)

†Not available for Kenya.
Source: B. Ferry, 1981: Tables 5A to 5D.

Appendix Table A-5: Median Length of Breast-feeding in Months During the Last Closed Birth Interval By Birth Order. Confined to Women Whose Penultimate Birth Survived at Least 12 Months: WFS Countries†

COUNTRY	BIRTH ORDER					
	1	2	3	4	5+	All
ASIA						
Bangladesh	24.3	24.1	24.0	24.0	23.4	24.0
Indonesia	18.7	21.1	21.1	23.6	20.5	20.8
Jordan	7.6	8.7	11.7	12.2	12.3	12.0
Korea, Rep. of	14.0	15.8	18.0	20.3	22.1	17.6
Malaysia	1.9	2.8	3.2	4.1	4.0	3.2
Nepal	24.0	23.8	23.7	23.6	23.5	23.7
Pakistan	18.1	18.0	18.1	18.0	18.0	18.0
Philippines	9.6	11.8	11.9	12.1	12.1	11.9
Sri Lanka	12.1	12.4	14.3	17.6	17.7	14.9
Thailand	13.0	16.2	15.6	17.6	18.2	16.7
LATIN AMERICA AND THE CARIBBEAN						
Colombia	5.1	5.8	6.5	8.7	9.5	7.5
Costa Rica	2.4	2.8	3.4	4.7	5.9	3.4
Dominican Republic	4.9	7.4	8.2	10.8	11.7	8.7
Guyana	5.0	5.7	6.5	8.6	9.4	7.6
Jamaica	6.3	6.4	7.5	7.3	8.7	7.6
Mexico	4.5	7.3	10.6	11.5	11.9	9.8
Panama	2.5	3.4	5.5	8.6	11.6	6.0
Peru	7.8	9.8	11.7	12.1	13.2	11.9

†Not available for Kenya.
Source: B. Ferry, 1981: Table 5E.

Appendix Table A-6: Percent of Women Who Breast-fed Their Penultimate Child by Urban/Rural Residence: WFS Countries†*

COUNTRY	RESIDENCE				
	Urban		Rural		% Difference
ASIA	%	Number	%	Number	R-U/U
Bangladesh	98.3	163	99.4	2056	1.1
Indonesia	95.1	452	99.4	2965	4.5
Jordan	92.6	677	97.3	257	5.1
Korea, Rep. of	95.5	985	98.3	1047	3.0
Malaysia	62.5	331	84.8	1549	35.7
Pakistan	98.0	174	100.0	468	2.0
Philippines	67.5	1008	79.0	2151	17.0
Sri Lanka	97.4	419	97.5	1985	0.0
Thailand	76.8	164	96.3	1099	25.4
LATIN AMERICA AND THE CARIBBEAN					
Colombia	91.5	671	95.0	340	3.8
Costa Rica	80.5	538	83.7	286	4.0
Dominican Republic	85.9	262	94.7	225	10.2
Guyana	89.0	362	91.3	657	2.6
Jamaica	94.0	404	96.2	426	2.3
Mexico	83.3	1262	91.9	754	10.3
Panama	81.1	436	88.7	356	9.4
Peru	89.8	4181	97.5	2441	8.6

*Confined to ever-married women with at least two births including any current pregnancy, whose last closed birth interval exceeded 32 months and whose penultimate child survived at least 24 months.

†Not available for Kenya or Nepal.

Sources: WFS First Country Reports, Table 4.1.5B except Indonesia (3.7.5A); Thailand (4.1.3C); Pakistan (4.1.4); Costa Rica (4.1.4A); Colombia (4.1.4B); Malaysia, Dominican Republic and Bangladesh (4.1.4C); Mexico (4.1.4E); Jordan, the Philippines, and Sri Lanka (4.1.5C).

Appendix Table A-1: Selected Demographic, Social, and Economic Characteristics for Countries in the WFS: 1974-78

	Year of WFS Survey	Population Estimate[b,aa] Mid-1976 (Millions)	Surface Area (1000 km^2)[bb]	Birth Rate[b,aa]	Death Rate[b,aa]	Rate of Population Growth[c,aa] (Annual, Percent)	Infant Mortality Rate[d,aa]	Population Under 15 Years[aa] (Percent)	Life Expectancy at Birth[aa] (Years)	Percent Women in Union,[gg] Age 15-19	Urban Population (Percent)[f,aa]	Labor Force in Agriculture[p,cc] (Percent)	Per Capita Gross National[g,aa] Product (U.S. $)	Physical Quality of Life[g,h,dd] Index	Adult Literacy Rate[i,bb,cc] (Total)	(Female)	(Male)	Population per Physician[p,cc]	Population Having Access[p,cc] to Safe Water (Percent)	Government Position on[j,ff] Family Planning	Percent Married Women[gg] Using Contraception, Age 15-49
ASIA																					
BANGLADESH	1975	76.1	144	47	20	2.7	153	43	46	64.8[gg]	9	78	110	32	22[cc]	13	37	11,350	53	OP-DMR	8
INDONESIA	1976	134.7	2,027[k]	38	14	2.4	137	44	48	31.0[m]	18	60	240	48	72[m]	59	87	16,430	12	OP-DMR	26[m]
JORDAN	1976	2.8	98	48	13	3.4	97	48	53	28.0	42	28	610	47	70	–	–	2,250	56	NOP-FPAV	22
KOREA, (REP.)	1974	34.8	98	24	7	1.7	47	39	65	3.2	48	45	670	82	88	81	94	1,600	62	OP-DMR	35
MALAYSIA	1974	12.4	330	31	6	2.5	41	43	68	11.3[n]	27	44	860	73	75	58	86	4,350	62	OP-DMR	33[m]
NEPAL	1976	12.3	141	44	20	2.3	152	40	44	61.5	4	93	120	27	13	3	22	38,650	9	OP-DMR	2
PAKISTAN	1976	72.5	804[l]	44	14	3.0	139	46	51	38.0	26	58	170	36	20[cc]	12	43	3,850	29	OP-DMR	5
PHILIPPINES	1978	44.0	300	35	10	2.5	80	43	58	11.0	32	51	410	71	87[o]	–	–	3,150	39	OP-DMR	37
SRI LANKA	1975	14.0	66	26	9	1.7	47	39	68	6.5	22	54	200	82	76[o]	64	86	6,230	20	OP-DMR	32
THAILAND	1977	43.3	514	33	10	2.3	89	45	61	14.4[o]	13	77	380	71	79[o]	70	87	8,370	22	OP-DMR	33
LATIN AMERICA																					
COLOMBIA	1976	23.0	1,140	33	9	2.4	90	44	61	14	64	31	630	72	73	71	75	1,820	64	OP-DMR	42
COSTA RICA	1976	2.0	51	29	5	2.4	38	44	68	13	41	30	1,040	85	84[o]	84	85	1,550	77	OP-DMR	64
DOMINICAN REP.	1976	4.8	49	39	9	3.0	96	48	58	20	47	58	780	64	66	65	68	1,870	55	OP-DMR	31
GUYANA	1975	.8	215	27	7	2.0	50	44	68	25	40	31	540	84	86[cc]	86	86	3,270	–	NOP-FPAV	31
JAMAICA	1975-76	2.1	11	30	7	2.3	20	46	68	23	41	24	1,070	85	87[cc]	87	87	3,510	86	OP-DMR	39
MEXICO	1978	62.3	1,973	42	8	3.4	66	46	65	18	64	34	1,090	75	74[o]	70	78	1,840[hh]	62	OP-DMR	30
PANAMA	1977	1.7	76	32	7	2.6	47	43	66	17	50	30	1,310	79	78	78	79	1,270	79	OP-DMR	54
PERU	1977-78	16.0	1,285	40	11	2.9	80	45	56	16	55	40	800	65	72[cc]	67	90	1,580	47	NOP-FPAV	31
AFRICA																					
KENYA	1977	13.8	583	48	15	3.3	119	46	50	33	10	79	240	39	40	–	–	8,840	17	OP-DMR	7

NA = not available

a Based on most recent official country or U.N. estimate: mid-1974 estimate for most countries. Each estimate was updated to mid-1976 by applying the same rate of growth as indicated by population change during part or all of the period since 1970.

b Rates refer to 1976 and were obtained by interpolating the 1970-1975 and 1975-1980 estimates of the U.N. to 1976. The 1970-1975 and 1975-1980 rates were used in the medium variant estimates and projections as assessed by the U.N. in 1973 (U.N., *Selected World Demographic Indicators By Countries, 1950-2000). The interpolated figures should be considered as rough approximations only.*

c Birth rate minus the death rate. Since the rates were based on unrounded birth and death rates, some rates do not exactly equal the difference between the birth and death rates shown because of rounding.

d Annual number of deaths to infants under one year of age per 1,000 births.

e The percentage of women currently 15-19 years of age currently in union (as defined by each country), excluding those currently married but separated.

f The percentage of the total population living in areas defined as urban by each country.

g Data refer to either 1975 or 1976.

h Based on an average of life expectancy at age one, infant mortality, and literacy rates.

i Adult literacy is defined by source bb and cc as the percentage of those 15 or more years of age who are able to read and write. The following exceptions hold:
Source bb: Indonesia and Malaysia, 10 or more years of age.
Data from source dd and cc refer to 1970; from source to year of survey. The following exceptions hold:
Source bb Indonesia and Nepal, 1971; Colombia, 1964; Sri Lanka and Costa Rica, 1963.
Source cc: Bangladesh and Peru, most recent estimate.
Data are from source bb unless otherwise indicated.

j The codes used to signify the government position on family planning are as follows:
OP-DMR: Official policy to reduce population growth for demographic reasons; support family planning to implement this policy.
NOP-FPAV: No official policy or statement on family planning or stated policy of non-intervention, services freely available from government centers or private clinics.

k Indonesia—including West Irian.

l Pakistan—excluding Jammu, Kashmir, Junagardh, Manavadar, Gilgit, and Baltisan.

m Indonesia—Java & Bali only.

n Malaysia—includes Peninsular Malaysia only.

o Excluding estimated adjustments for undernumberation.

p Data refer to either 1977 or 1978.

SOURCES:

aa Population Reference Bureau, *World Population Data Sheet: 1976; 1978.*

bb United Nations, *Demographic Yearbook, 1976,* T.3 and T.41; *1973,* T.33; *1971* T.1B.

cc World Bank, *World Tables 1980:* Social Indicators, T.3 and T.5.

dd Overseas Development Council. *The United States and World Development: Agenda 1979.* T.A-4.

ff Population Reference Bureau, *Family Planning and Marriage Data Sheet: 1970-1980.*

gg WFS First Country Reports, Various Tables.

hh WHO *World Health Statistics Annual, 1978,* Vol. III, T.2.1.

Women with at Least Two Births (including any current pregnancy) Whose Penultimate Birth Survived at Least 12 Months: WFS Countries†

COUNTRY	< 25 YEARS BIRTH ORDER				25-34 YEARS BIRTH ORDER						35 YEARS + BIRTH ORDER					
	1	2	3	All**	1	2	3	4	5+	All	1	2	3	4	5+	All
ASIA																
Bangladesh	99.6 (455)	99.1 (293)	98.6 (194)	99.3 (1031)	98.9 (93)	99.3 (225)	99.6 (270)	99.6 (327)	99.1 (595)	99.3 (1510)	99.2 (41)	100.0 (75)	97.4 (93)	95.7 (138)	99.1 (1073)	98.7 (1420)
Indonesia	98.5 (550)	96.7 (241)	99.2 (87)	98.1 (910)	97.4 (431)	98.3 (487)	98.6 (450)	98.6 (333)	99.4 (458)	98.5 (2158)	97.4 (268)	99.1 (295)	98.5 (334)	98.4 (380)	98.2 (1508)	98.3 (2785)
Jordan	93.1 (190)	93.9 (170)	92.5 (100)	93.4 (527)	92.6 (112)	91.7 (133)	93.5 (176)	95.8 (192)	92.9 (557)	93.3 (1171)	98.2 (25)	86.5 (45)	94.7 (61)	98.6 (68)	94.1 (1022)	94.2 (1221)
Korea, Rep. of	93.8 (145)	94.7 (38)	80.0* (5)	93.6 (188)	91.7 (579)	96.1 (622)	97.4 (382)	94.9 (158)	98.5 (67)	95.0 (1808)	92.9 (140)	97.3 (291)	97.4 (454)	98.0 (491)	97.2 (924)	97.1 (2300)
Malaysia	80.3 (309)	76.6 (167)	73.8 (61)	78.2 (559)	63.3 (360)	78.6 (458)	78.6 (359)	83.1 (308)	85.6 (389)	77.9 (1874)	70.0 (203)	76.2 (261)	77.6 (294)	81.5 (313)	82.1 (1461)	79.9 (2532)
Nepal	99.3 (284)	99.4 (164)	100.0 (47)	99.3 (505)	100.0 (272)	99.7 (350)	100.0 (323)	99.5 (246)	99.6 (249)	99.8 (1440)	99.3 (126)	99.3 (143)	100.0 (236)	100.0 (219)	99.4 (830)	99.5 (1553)
Pakistan	98.2 (223)	99.2 (161)	88.3 (61)	97.3 (481)	97.3 (163)	99.1 (226)	99.3 (257)	99.4 (223)	99.0 (459)	98.9 (1328)	97.7 (53)	98.6 (85)	99.3 (102)	97.1 (135)	98.8 (1028)	98.6 (1402)
Philippines	92.2 (337)	93.4 (239)	87.0 (87)	91.5 (703)	80.3 (455)	84.6 (596)	87.6 (552)	90.8 (429)	90.5 (524)	86.8 (2556)	76.0 (169)	85.8 (287)	86.1 (348)	85.8 (385)	89.8 (2184)	87.9 (3373)
Sri Lanka	96.0 (243)	98.5 (120)	98.1 (55)	96.8 (439)	94.4 (422)	96.3 (466)	95.9 (372)	97.5 (287)	98.4 (315)	96.3 (1861)	94.5 (269)	96.9 (322)	96.6 (358)	98.2 (344)	97.7 (1442)	97.2 (2735)
Thailand	91.2 (206)	93.9 (91)	95.3 (22)	92.0 (323)	86.0 (269)	94.4 (251)	96.0 (223)	96.0 (145)	93.9 (166)	92.7 (1054)	90.6 (105)	97.4 (142)	89.7 (174)	95.0 (190)	94.5 (796)	94.0 (1407)
LATIN AMERICA AND THE CARIBBEAN																
Colombia	88.4 (242)	94.9 (117)	94.0 (50)	91.1 (425)	85.9 (213)	90.6 (224)	91.6 (178)	93.9 (148)	93.6 (234)	91.0 (997)	85.9 (85)	92.8 (125)	94.4 (126)	96.6 (119)	95.3 (679)	94.4 (1134)
Costa Rica	72.9 (377)	74.0 (196)	84.0 (94)	75.4 (756)	74.5 (161)	82.9 (170)	81.9 (138)	83.2 (125)	83.2 (346)	81.5 (940)	87.3 (55)	76.2 (84)	80.6 (67)	82.5 (63)	86.2 (435)	84.2 (704)
Dominican Republic	89.3 (169)	95.6 (91)	93.0 (43)	92.0 (326)	82.1 (84)	84.1 (126)	95.0 (100)	95.3 (106)	95.5 (176)	91.0 (592)	80.9 (47)	94.2 (52)	88.6 (88)	87.9 (66)	91.7 (423)	90.4 (676)
Guyana	81.2 (239)	94.4 (126)	93.7 (64)	87.2 (460)	84.8 (171)	92.3 (195)	92.1 (202)	91.3 (150)	90.8 (283)	90.4 (1001)	88.1 (67)	87.9 (99)	85.7 (98)	96.4 (112)	92.0 (697)	91.2 (1073)
Jamaica	93.8 (195)	98.0 (98)	92.2 (51)	94.8 (364)	91.9 (136)	91.0 (134)	95.7 (116)	99.0 (102)	98.0 (150)	95.0 (638)	95.2 (84)	91.4 (70)	93.0 (86)	98.8 (84)	97.7 (432)	96.4 (756)
Mexico	79.4 (402)	86.4 (264)	89.1 (110)	83.1 (833)	74.6 (315)	85.8 (338)	86.9 (337)	89.8 (295)	86.4 (574)	84.9 (1859)	77.7 (121)	80.4 (163)	87.6 (194)	87.5 (200)	87.5 (1397)	86.4 (2075)
Panama	80.3 (173)	82.1 (84)	85.4 (48)	82.5 (395)	74.2 (252)	80.5 (267)	83.5 (218)	87.8 (156)	89.9 (237)	82.7 (1130)	74.8 (119)	86.2 (159)	84.3 (127)	89.2 (157)	90.3 (555)	87.2 (1117)
Peru	91.1 (349)	97.3 (185)	93.3 (87)	93.5 (647)	86.2 (295)	89.1 (344)	92.5 (319)	94.8 (256)	93.6 (389)	91.3 (1604)	88.2 (133)	87.9 (216)	90.0 (215)	91.0 (242)	94.5 (1296)	92.6 (2101)

**Total includes the few women under 25 with 4th and higher births.
*Cell size less than 20.
†Not available for Kenya.

Source: B. Ferry, 1981: Tables 5A to 5D.

Appendix Table A-4: Median Length of Breast-feeding in Months During the Last Closed Birth Interval by Birth Order and Age. Confined to Women Whose Penultimate Birth Survived at Least 12 Months: WFS Countries†

COUNTRY	< 25 YEARS BIRTH ORDER				25-34 YEARS BIRTH ORDER						34 YEARS + BIRTH ORDER					
	1	2	3	All	1	2	3	4	5+	All	1	2	3	4	5+	All
ASIA																
Bangladesh	24.2	23.9	23.5	24.0	24.4	24.2	24.2	24.0	23.9	24.0	29.6	29.8	25.2	24.2	24.0	24.1
Indonesia	18.3	18.3	17.7	18.2	21.6	23.5	19.9	22.4	18.4	20.4	19.8	23.5	23.8	23.7	23.3	23.5
Jordan	7.6	8.8	11.6	8.8	5.4	11.0	11.8	12.4	11.9	11.8	12.3	5.7	11.4	12.1	13.8	12.4
Korea, Rep. of	14.1	17.2	18.0	14.7	13.5	14.8	17.3	19.6	17.2	15.2	17.7	17.5	19.0	21.4	22.3	20.4
Malaysia	2.7	3.0	2.4	2.7	1.0	2.3	2.9	3.5	3.7	2.7	2.4	3.4	4.1	5.5	4.0	4.0
Nepal	22.5	18.0	17.3	18.5	24.2	23.8	23.6	19.4	18.0	23.6	26.5	25.5	24.2	24.2	23.7	24.0
Pakistan	17.8	14.9	14.6	15.5	18.4	18.2	18.2	17.6	16.2	17.8	23.5	23.7	23.5	23.7	18.2	18.5
Philippines	11.6	12.0	11.7	11.8	9.0	11.8	12.0	12.3	12.2	11.9	7.8	11.7	11.7	11.9	12.1	12.0
Sri Lanka	12.3	13.6	17.5	12.3	11.9	12.5	14.2	17.7	16.5	12.5	12.4	12.4	14.3	17.6	17.8	17.6
Thailand	12.4	15.1	18.3	14.0	12.3	17.1	17.2	17.7	17.3	15.5	17.8	16.6	14.9	17.7	18.4	17.9
LATIN AMERICA AND THE CARIBBEAN																
Colombia	5.4	5.1	6.8	5.7	4.4	5.5	6.2	8.5	8.2	6.1	7.1	6.3	7.0	9.2	10.4	8.9
Costa Rica	2.1	2.5	3.5	2.7	2.4	2.8	3.2	4.0	4.9	3.3	3.6	3.2	3.4	5.6	6.5	5.5
Dominican Republic	6.0	10.0	10.7	7.8	3.1	4.0	8.1	10.8	11.7	8.0	5.2	6.8	7.5	11.7	11.7	10.9
Guyana	4.4	4.7	6.6	5.2	5.3	5.9	6.2	8.4	8.7	6.5	5.3	5.8	8.6	9.2	10.3	9.1
Jamaica	6.7	7.6	6.3	7.0	5.1	6.1	7.8	6.7	7.4	6.6	6.8	6.4	7.6	7.8	8.9	8.6
Mexico	5.8	9.0	11.7	8.1	3.3	6.5	9.1	11.8	11.7	8.5	6.6	6.3	10.6	8.3	11.9	11.6
Panama	3.3	5.7	6.3	5.1	2.0	3.0	5.7	8.9	9.4	5.2	2.5	4.1	4.3	8.4	11.8	8.1
Peru	9.8	12.0	11.9	11.6	5.9	8.4	11.9	11.9	13.2	11.7	6.4	7.5	9.2	13.4	13.3	12.2

†Not available for Kenya.

Source: B. Ferry, 1981: Table 5E.

Appendix Table A-7: Percent of Women Who Breast-fed Their Penultimate Child by Educational Level: WFS Countries†*

COUNTRY	EDUCATIONAL LEVEL					
	None		Primary		Secondary	
ASIA	%	Number	%	Number	%	Number
Bangladesh	99.4	1786	99.3	375	100.0	54
Indonesia	99.1	1858	98.8	1434	93.2	116
Jordan	95.8	666	89.5	153	87.8	115
Korea, Rep. of	98.6	580	97.8	1021	92.7	426
Malaysia	86.7	837	78.7	816	63.1	160
Nepal	99.6	1810	100.0	45	—	—
Pakistan	100.0	583	98.0	36	91.0	23
Philippines	79.6	211	80.8	876	72.5	2071
Sri Lanka	97.5	610	98.1	1028	96.5	765
Thailand	93.8	259	96.2	929	64.5	76
LATIN AMERICA AND THE CARIBBEAN						
Colombia	95.6	228	93.2	584	88.2	195
Costa Rica	78.5	51	83.8	590	77.2	183
Dominican Republic	100.0	39	91.5	401	68.1	47
Guyana	—	—	91.1	775	88.5	235
Jamaica	—	—	96.1	695	90.4	135
Mexico	93.4	517	86.8	1185	74.4	317
Panama	89.5	91	87.9	376	78.6	325
Peru	96.5	1989	94.3	3309	82.8	1324

*Confined to ever-married women with at least two births including any current pregnancy, whose last closed birth interval exceeded 32 months and whose penultimate child survived at least 24 months.

†Not available for Kenya.

—No women in this category.

Sources: WFS First Country Reports, Table 4.1.5A except for Indonesia (3.7.5C); Thailand (4.1.3A); Pakistan (4.1.4); Costa Rica (4.1.4B); Nepal, Malaysia, Dominican Republic, Bangladesh and Mexico (4.1.4A); Peru (4.1.5C); and Panama (special tabulation).

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